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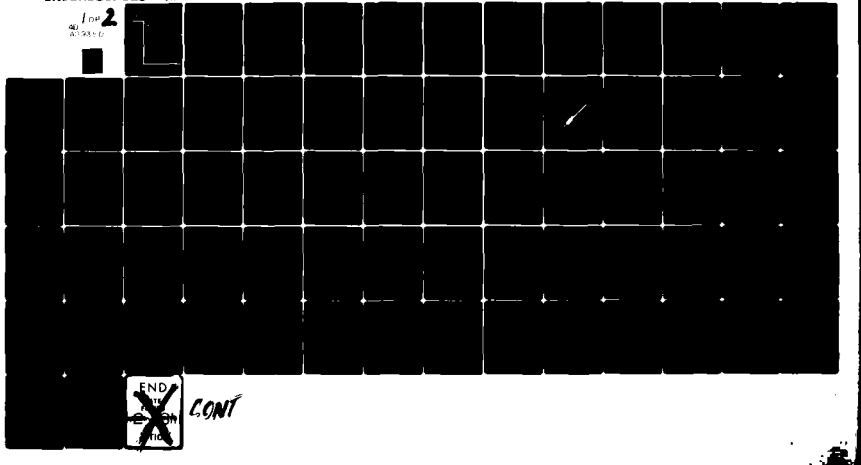

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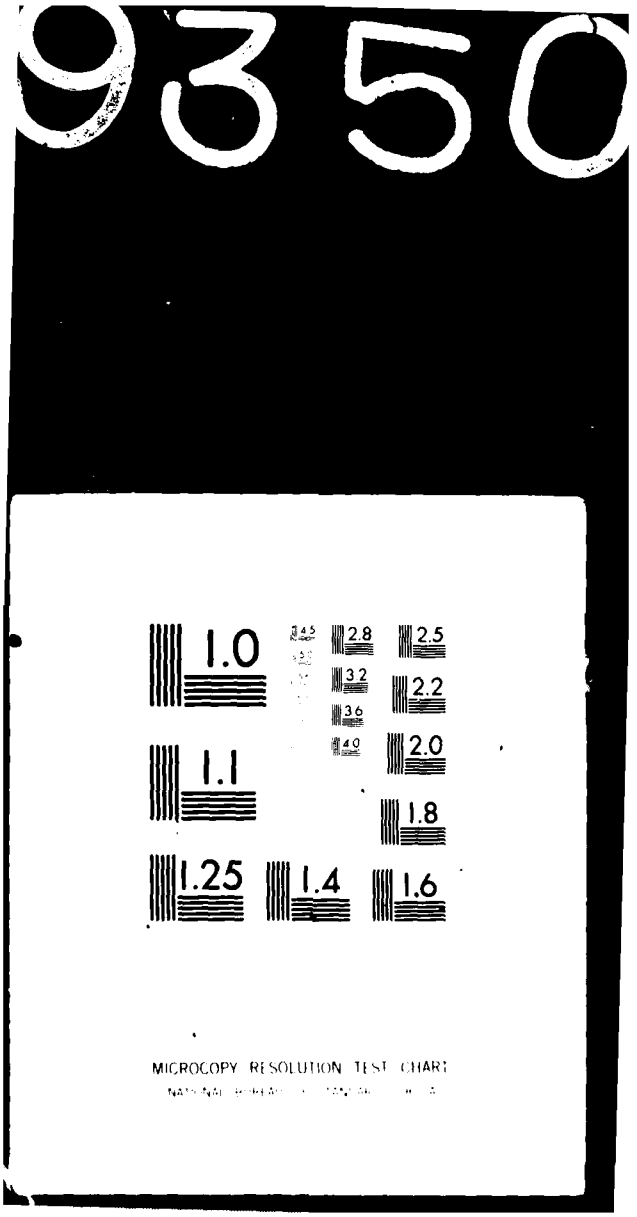
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AD A093508

MANAGEMENT ENGINEERING TEAM APPLICATION OF OFFICER GRADE REQUIREMENTS METHOD

By

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Brooks Air Force Base, Texas 78235

December 1980

Final Report

AIR FORCE SYSTEMS COMMAND
BROOKS AIR FORCE BASE, TEXAS 78235

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This final report was submitted by the Manpower and Personnel Division, under Project 7734, with HQ Air Force Human Resources Laboratory (AFSC), Brooks Air Force Base, Texas 78235. Mr. Kenn Finstuen was the Principal Investigator for the Laboratory.

This report has been reviewed by the Office of Public Affairs (PA) and is releasable to the National Technical Information Service (NTIS). At NTIS, it will be available to the general public, including foreign nations.

This technical report has been reviewed and is approved for publication.

NANCY GUINN, Technical Director
Manpower and Personnel Division

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Commander

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REPORT DOCUMENTATION PAGE

READ INSTRUCTIONS BEFORE COMPLETING FORM

1. REPORT NUMBER: AFHRL-TR-80-32	2. GOVT ACCESSION NO.: AD-A109508
3. RECIPIENT'S CATALOG NUMBER	
4. TITLE (and Subtitle): MANAGEMENT ENGINEERING TEAM APPLICATION OF OFFICER GRADE REQUIREMENTS METHOD	5. TYPE OF REPORT & PERIOD COVERED: Final rept.
	6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s): Kenn Finstuen, Gary N. Matthews, William H. Pope	8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS: Manpower and Personnel Division, Air Force Human Resources Laboratory, Brooks Air Force Base, Texas 78235	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS: 62703F, 77340208
11. CONTROLLING OFFICE NAME AND ADDRESS: HQ Air Force Human Resources Laboratory (AFSC), Brooks Air Force Base, Texas 78235	12. REPORT DATE: December 1980
	13. NUMBER OF PAGES: 70
14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office)	15. SECURITY CLASS. (of this report): Unclassified
	15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

Approved for public release; distribution unlimited.

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

descriptive crossbreaks
inter-rater reliability
job descriptions
job evaluation
job requirement factors
management engineering team
multiple regression analysis
officer grade requirements
polynomial fitting
rating scales

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This report presents detailed results of a large scale Management Engineering Team (MET) application of the Officer Grade Requirements (OGR) methodology. The OGR technology was applied to determine the appropriate grades for non-aircrew Air Force officer positions based on job content and responsibility. Based on data from over 11,000 position descriptions collected by METs and MET ratings of a representative sample of descriptions from the original OGR project the following major steps were accomplished: (a) development of an efficient linear regression equation for grade determination, (b) construction of a stable grade conversion table, and (c) computation of validity and reliability information concerning MET rating behavior. These analyses indicated that METs apply the technology in a systematic and reliable manner, resulting in a defensible statement of the appropriate military grade for a given non-aircrew job.

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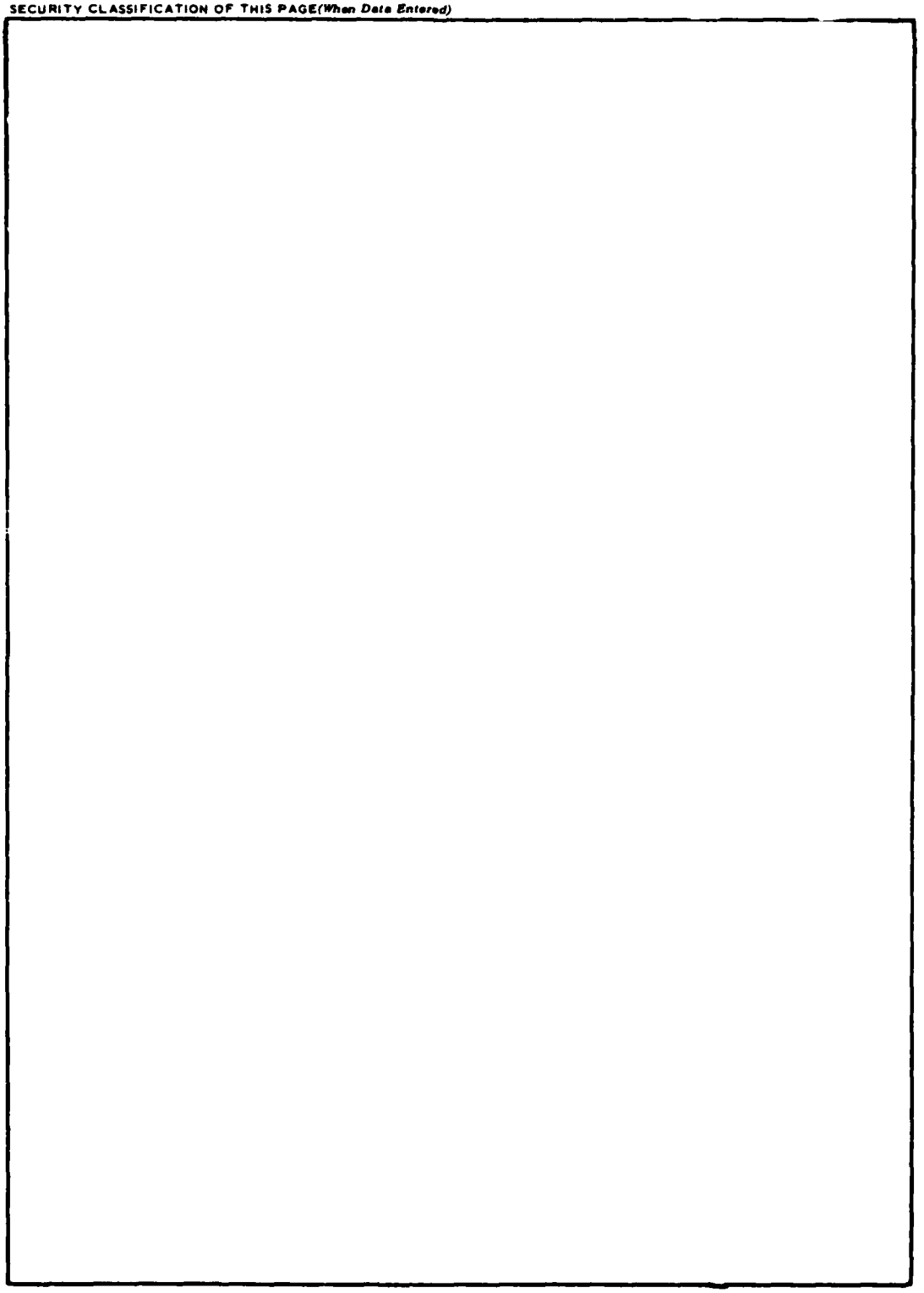


SUMMARY

Objective

The primary objectives of this report are to provide (a) an overview of a large scale Management Engineering Team (MET) field test of the officer grade requirements (OGR) technology, (b) a comprehensive description of the development of the job evaluation method by which grades may be determined, (c) a detailed report of results and findings from the field test, and (d) a discussion of the implication of these findings for operational use by METs.

This document is a companion report to AFHRL-TR-80-31, which presents an historical overview of the OGR project—1963 to present—including a listing of the grade structure projected to 54 career utilization fields and the entire non-aircrew officer force. This report provides documentation of the job evaluation methodology and data analysis and supplements the preceding report.

Approach

The OGR technology has been under development at various times for over 15 years. During this present phase of the research effort, the OGR method was adapted and applied by METs in a large-scale field test. This report provides extensive analyses of the reliabilities and validities of measurements, as well as an explanation of the development of an operational grade determination equation and the construction of a stable grade conversion table.

Specifics

Using the basic technology developed in a preliminary feasibility study (AFHRL-TR-75-80), the OGR method was applied to over 11,000 current Air Force officer job descriptions to determine the appropriate grades for those positions, based on job content and responsibility. METs collected and rated the current job descriptions, as well as a representative sample of descriptions of jobs for which grades had been determined by an Air Force Policy Board in the original OGR project. Job ratings employing benchmark scale rating techniques were made on job evaluation factors.

Once the initial data collection from the field was complete, a comprehensive set of reliability of measurement coefficients were computed for both types of ratings to ensure that all MET members were rating jobs in a similar fashion. Ratings on various job factors together with position description data were then entered into an eight-variable multiple linear regression equation to predict the appropriate grade for a given job. The predictors in the final equation were (a) special training and work experience, (b) communication skills, (c) judgment and decision making, (d) planning, (e) management, (f) level of organization, (g) level of job within organization, and (h) the supervisor's judgment of the appropriate grade for the job.

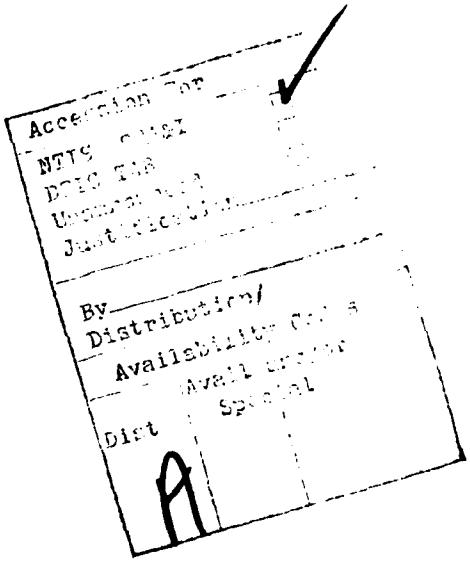
Taking job composite scores generated by the grade determination equation, a stable grade conversion table was then constructed for research purposes which converted weighted job composite scores into appropriate military grades from Lieutenant through Colonel. Details for the construction of a conversion table which would reflect present career progression policy are given also.

Conclusions

The results presented in this report indicate that there was a high agreement among MET raters as to the job content and responsibility levels of jobs. Rating reliabilities are reported by rater type (officer, civilian, and enlisted MET members) and for all job evaluation factors used in the field test and indicate high inter-rater agreement among raters.

METs were able to accurately apply the technology based on validity computations. The validity of the grade equation compared to judgments of grades made by an Air Force Policy Board resulted in a multiple regression coefficient of .90, indicating a high predictive efficiency. In addition to the final grade composite validation, computations of validities for the eight grade-determination equation components are also reported and indicate the system assigns grades in a fashion consistent with judgments made by the Air Force Policy Board.

In addition to the aforementioned data analyses, results, and procedure descriptions, the report provides samples of all data collection forms and rating instruments developed in the study.



PREFACE

This research was completed under Project 7734, Development of Methods for Describing, Evaluating, and Structuring Air Force Occupations; Work Unit 77340208, Determination of Non-Aircrew Officer Grade Requirements: Conversion Tables and Projections by Management Engineering Teams. The work unit was established in response to a Request for Personnel Research (RPR 75-21) submitted by HQ USAF/PRMRE and DPXX titled "Determination of Officer Grade Requirements Based on Job Content and Responsibilities." The RPR requested that the initial test (Stacy, Matthews, & Hazel, 1975) of the Management Engineering Team (MET) job rating and evaluation system be further developed and expanded to a functional technology which could be implemented by the METs. The request specifically entailed (a) extension of the previous research in developing a reliable and systematic method the METs could use to determine appropriate grades for jobs based on their content and responsibility levels and (b) application of this technology to forecast the non-aircrew officer grade requirements in an empirical manner.

The Air Force Management Engineering Agency (AFMEA) served as the monitoring agency and assisted in the accomplishment of this project.

Appreciation is expressed to the following individuals for their contribution to this research effort (titles/organizations as of April 1978):

AFMEA: Captain Robert T. Walker. Air Force Management Engineering Agency. AFMEA/AFHRL Liaison Officer.

AFHRL: Dr. Raymond E. Christal. Technical Director, Occupation and Manpower Division. General director of OGR research.

Dr. Joe T. Hazel. Chief, Career Development and Job Evaluation Branch. Project Monitor.

Mr. William J. Stacy. Task Scientist.

Mr. Johnny J. Weissmuller. Computational Sciences Division (SM) Lead Systems Analyst and Computer Specialist.

Mr. Henry W. Clark. (SMAV) Senior Systems Analyst.

Mr. Jimmy D. Souter. Chief, Analysis and Programming Branch (SMA).

Senior Airman Kay Wilson. Computer Specialist.

Mrs. Mary J. Carreon. Chief, Data Preparation Section (SMOK).

Mrs. J. Joyce Giorgia. Scientific Assistant.

Mrs. Mary D. Spencer. Administrative Support.

Mrs. Helen Widner, Mrs. Marie Courtney and Mrs. Sharon Hights. Typing Support.

AFMTC/OTS Lt Manuel Garcia, Jr., Lt Michael J. Letica. Job descriptions and MET data reviewers.

This study does not constitute authority to change existing Air Force officer grades, and its publication does not infer approval to implement report procedures as USAF policy. Such actions or objectives are a function of HQ USAF. Further, the report does not attempt to tie into or address provisions of the Defense Officer Personnel Management Act (DOPMA) nor claim compatibility with same. While the report does briefly mention grade authorizations and career planning objectives, it neither fully addresses nor encompasses the entire problem of grade distributions to support orderly career progression plans, nor recognizes external limitations on Air Force grade structure. Although the philosophy and methodology of the report are assumed to be valid, accurate and unbiased, the report should be viewed from the prospective that considerable efforts over the years have allowed USAF to determine, establish, and defend Air Force grade requirements, albeit multi-faceted approaches were utilized.

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MANAGEMENT ENGINEERING TEAM APPLICATION OF OFFICER GRADE REQUIREMENTS METHOD

I. INTRODUCTION

The methodology and various technical details involved in conducting research to determine non-aircrew officer grade requirements based on job content and responsibility is presented in this report, which is a companion publication to AFHRL-TR-80-31 (Hazel & Finstuen, 1980). This report extends the major findings and results which were highlighted in the previous report, and discusses the techniques used to arrive at those findings. More specifically, this report elaborates on such items as (a) the various sample size sets and subsets used during the entire stream of Officer Grade Requirement (OGR) research, (b) the development of factors and weights used in the OGR eight-variable equation, (c) the inter-rater reliabilities computed for various sample sets and subsets of jobs judged by various types of Management Engineering Team (MET) raters, (d) validity comparisons of the final regression equation used, and (e) the conversion table and how it was generated and applied during this cycle of the OGR research.

The first OGR system of grade determination, commencing in 1963, used field grade officers as raters (Hazel, 1965; Hoggatt & Christal, 1966). The grade determination process was applied to the total officer force in 1964 using a projection technique (Christal, 1965). This allowed a comparison between the existing Unit Manning Document (UMD—now termed UDL, Unit Detail Listing) statements of needed grades for various officer career specialties and the OGR equation statements of appropriate military grade for the same jobs. A small-scale test of the system using MET raters was later carried out in 1974 (Stacy, Matthews, & Hazel, 1975), indicating the feasibility of a large-scale field test of the technology.

The end product of the present OGR research resulted in an efficient officer grade determination system which assigns grades to non-aircrew officer jobs. The essential components of this system consist of a set of factors and job attributes which, when entered into a regression equation, are used to determine job content and responsibility scores. These predicted composite scores for any judged job are then converted to an appropriate military grade. The 1976 OGR study updated projections of appropriate grade requirements for over 60,000 non-aircrew officer positions.

A History of Sample Sets (1963–1977)

The history of the OGR research has been presented at length in several technical reports (Christal, 1965 & 1975; Hazel, 1965; Hoggatt & Christal, 1966; et al., 1975). A review of events occurring in the stream of research is given in Table 1.

Table 1. History of Officer Grade Requirements (OGR) Research

Year	OGR Event
1963—1966	Air Force Policy Board Policy-Capturing Equations Developed Initial Projections Made for Total Air Force
1966	Development of Benchmark Scales
1974—1975	Pilot Test of Management Engineering Team Application of Grade Determination Procedure
1976—1977	Large-Scale Field Test of the Technology and Construction of a Grade Conversion Table Projections to Non-Aircrew Force

At each of the stages of OGR development, samples (of jobs) have been drawn from various sets and subsets of job pools. In presenting the history of the research, the job sample sets would be useful both in an expository and an analytic presentation. This report analyzes each of the OGR events in terms of the number of job samples (n) used for each stage of the research. The initial Policy board sample jobs (N = 3,575) were extracted from a collection of approximately 80,000 job descriptions gathered in 1963 (Hazel, 1965; Hoggatt & Christal, 1966). These 3,575 jobs were evaluated by an Air Force Policy Board comprised of 22 colonels, and the first OGR policy-capturing equation was developed from this sample. Of these jobs, 1,000 were selected for the creation of a system of benchmark scales developed in 1966 (Brokaw & Giorgia). Using benchmark scales, it was found that ratings provided by field raters, when entered into an equation, generated grades which were nearly identical with those assigned by the Policy Board (r = .90). The initial parent population and subsequent samples drawn from it are depicted in Figure 1.

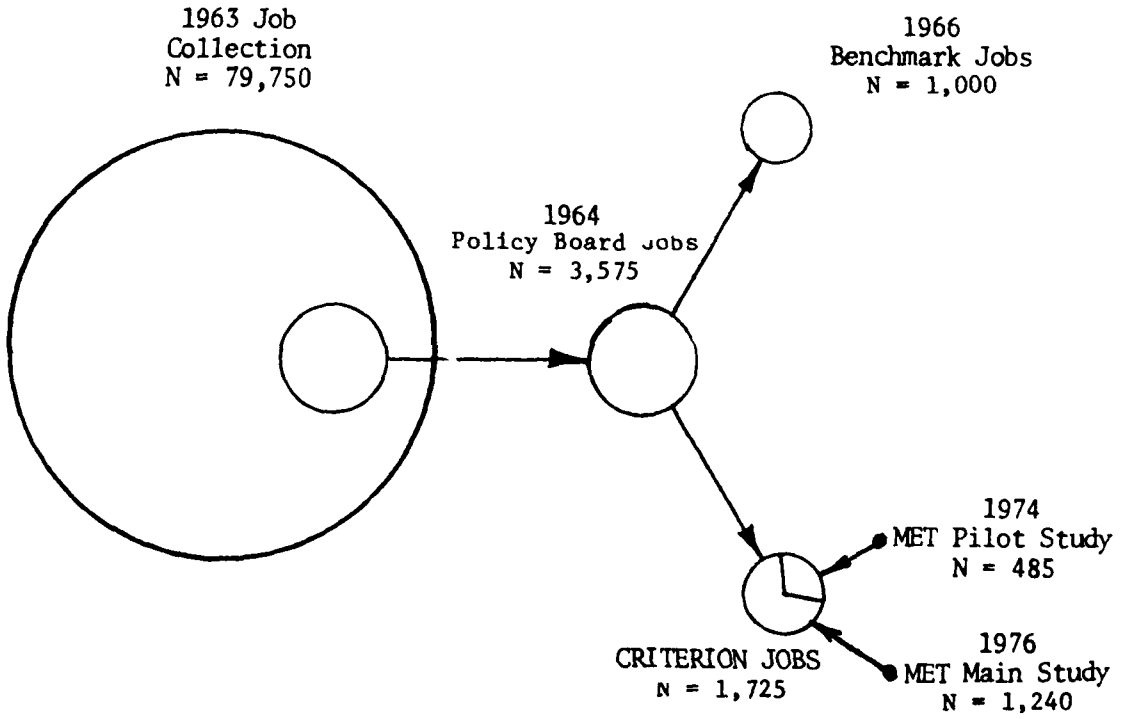

Figure 1. **Sample sets of jobs.**

During the 1963—1966 period (see Table 1), grades for a subset of 8,250 jobs from the original 79,750 were computed using the OGR technology and were combined with the sample of 3,575 Policy Board jobs resulting in a set of 11,825 (3,575 + 8,250) jobs (Hoggatt & Christal, 1966). This sample set became the projection base which was used in determining appropriate officer grade requirements for all Air Force officer jobs in 1964. In the more recent 1974 pilot study, 485 of the 3,575 Policy Board jobs were rated again, this time using MET personnel, rather than field grade officers (Stacy et al., 1975), as raters. In addition, 1,687 current job descriptions were also collected and rated, resulting in 2,172 jobs being rated in the 1974 pilot study. For clarification, these N sets are arrayed in descriptive crossbreak form with other N sets in Table 2 (Kerlinger, 1973).

The pilot study proved successful and indicated that MET members could apply the benchmark rating scales in the same manner that field grade officer raters had and that there was high inter-rater agreement among the MET members as to discernible levels of job content and responsibility.

An expansion of the pilot study was undertaken to subject the technology to a full field test using METs. As shown in Figure 1 and Table 2, an additional 1,240 Policy Board jobs were rated and combined with the 485 pilot study jobs. This resulted in a 1,725 job set for computing validity (comparing grades assigned by METs with those assigned by the Policy Board) and for computing a grade conversion table. In addition, 9,634 current jobs were collected, rated and added to the 1,687 current jobs from the pilot study to provide a base of over 11,000 jobs to use in making projections of officer grade requirements to the entire non-aircrew force (Hazel & Finstuen, 1980).

Table 2. **Sample Crossbreak of Subsets and Total Number of Jobs Used in Job Evaluation**

	Policy Board Jobs	Current Jobs	Totals
1974 Pilot Study	N=485 (1)	N=1,687 (4)	N=2,172 (7)
1976 Main Study	N=1,240 (2)	N=9,634 (5)	N=10,874 (8)
Total Sample	N=1,725 (3)	N=11,321 (6)	N=13,046 (9)

Cells	Description
(1) to (3)	Policy Board jobs used as the criterion in computing validity and construction of the grade conversion table
(4) to (6)	Current jobs newly collected used as the base for making projections to the total non-aircrew force
(7) and (8)	Rating subset information used for reliability computations
(9)	Grand total number of all jobs used in the study

The job evaluation effort of the OGR studies has resulted in ratings and computations of recommended grades for more than 23,000 jobs with projections addressing 176,000 officer jobs at various points in time over the past 14 years. As a result, the OGR is perhaps the largest and most comprehensive job evaluation study of its kind in existence.

II. METHODOLOGY

Grade Determination Process. The Air Force Human Resources Laboratory (AFHRL) had at its disposal a long and well-documented research effort to draw upon, having developed factors and scales for use in previous studies. The essential elements for job evaluation consist of jobs, job factors, a systematic evaluation scheme and a procedure which can rank-order a given set of jobs. These elements were incorporated into the OGR job evaluation method, each element being tailored for use specifically in an Air Force setting. The design of the present field test followed the previous grade determination process which had been developed. Figure 2 depicts the grade determination process.

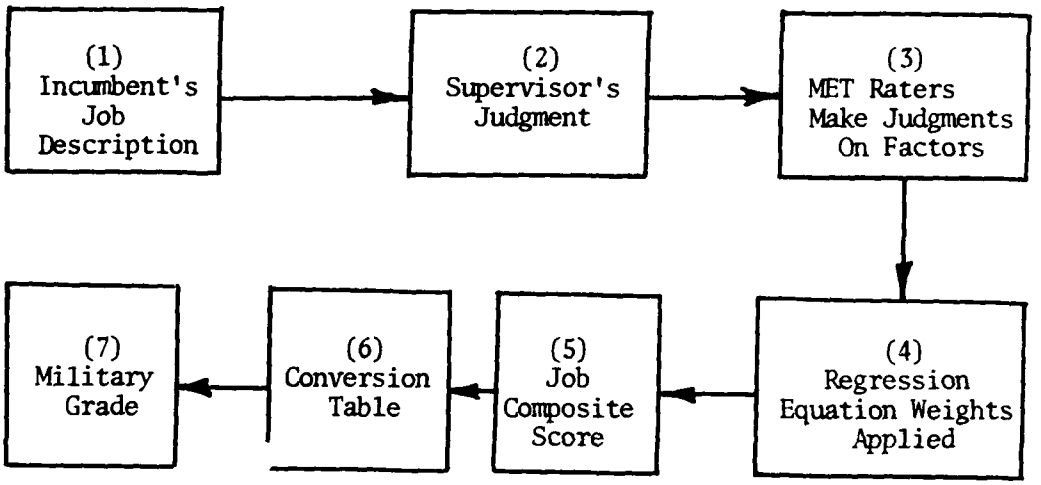

Figure 2. **The grade determination process.**

Statistical Considerations. In order to assess the dependability of MET raters' judgments, compared to the judgments of the Policy Board, MET raters provided factor ratings on a subset of 1,725 positions from the original criterion job set of 3,575 jobs. Scores resulting from the application of the grade determination equation can thus be compared with the grades assigned by the Air Force Policy Board. This comparison provides an index to the *validity* of the MET ratings. A high coefficient would assure that ratings made by MET members can be applied to individual jobs to determine the appropriate grade based on the content and the responsibility of the position. Portions of the 1,725-job set were mailed to nearly all METs participating in the survey, and they rated the jobs using the benchmark scale technique.

In addition, the sample of 11,000 current jobs was used to evaluate MET rating agreement. This same sample of current jobs was also used as the basis for making projections. A high correlation or agreement among MET raters provides an index to the *reliability* of the technology.

The grade conversion table was constructed from the 1,725 job sample. Essentially it was constructed in such a manner that the METs assigned the same number of jobs to a grade level as were previously assigned to that grade level by the 1964 Policy Board. (Christal, 1965, referred to this process as an equi-percentile conversion).

After all current jobs had been computed and converted, the 11,000 job set was used as the base for estimating the appropriate grades for the total non-aircrew force. This was accomplished for each of the

Air Force Specialty Codes (AFSCs) representing 54 officer utilization fields. The process involved assigning or projecting sample OGR changes of grade to the remaining non-aircrew AFSC jobs from which the sample jobs were drawn.

OGR projected grades were compared with the UDL grades assigned to jobs to assess the impact of the technology. Existing grade structures were also reported from the on-board strength figures in the Uniform Officer Records (UORs). Since projections can be only as definitive and usable as the sample on which they are based, those career areas where sample size was a limiting factor for grade determination included a cautionary statement to preclude misapplication or misinterpretation. The projections and various comparisons are reported in Appendix C of Hazel and Finstuen (1980).

Measurement Procedures and Instructions

Instruments used in the study were (a) officer position descriptions (Appendix A), (b) MET rater background and rating forms (Appendix B), (c) the benchmark scales used in both the pilot study and the field test (Appendix C), and (d) the Policy Board 16-point grade code scale (Appendix D).

From November 1975 to March 1976, officer position descriptions were filled out by the incumbents, stating the tasks and duties that were assigned to them as integral parts of their work. The incumbent then forwarded the description to the supervisor who made a judgment as to the appropriate grade for the job. The supervisor then returned the position description to the MET. At the direction of the MET project officer, MET monitors then fastened the position descriptions into folders with 25 randomly sorted descriptions per folder. (See Project Officer Instructions—Appendix E.) Descriptions were randomly assigned to folders to control for contextual rating effects (Madden, 1960). Descriptions were bound so that the MET rater could read only pages 2 and 3 which contained task and duty information. MET raters employed the benchmark scales in matching a job to a level of content and responsibility for each of the 10 grade defining factors and recorded their responses on the rating data sheet (Appendix B). They also provided their judgment of the appropriate grade using the 16-point Policy Board grade scale. Rating in this manner, the MET rater had no knowledge of the actual grade of the incumbent, the UDL grade for the job, nor the supervisor's judgment of the job's grade.

In addition, MET raters provided both benchmark scaled judgments for factors and 16-point grade scale judgments for original Policy Board jobs. These job descriptions, used for the validation procedure, had been randomly sorted and bound into folders in a manner similar to those for current jobs. All folders were then checked for completeness after being rated and were forwarded to AFHRL.

Previous inter-rater agreement of MET members using the benchmark scales during the pilot study had resulted in composite score reliabilities of .94 and .95 for Policy Board and current jobs, respectively. Reliabilities using the 16-point Policy Board grade scale were .90 for Policy Board and .93 for current jobs (Stacy et al., 1975). Based on this high degree of reliability, it was expected that measurements made with these instruments (the existing job description forms and benchmark scales) for the main field test would be of comparable quality.

Job Sample Sets

The entire study consisted of two central sample sets (see Table 2). The first, or mail-out sample of 1,725 Policy Board jobs was taken from utilization fields which were still in the Air Force inventory of specialties and were essentially unchanged since 1964. All major commands were represented in the sample. (In Appendix A, see Page 4 of the job description for the list of 21 major commands.) The sample was stratified across all UMD authorized grades from lieutenant to colonel at various levels of organization ranging from Detachment and Squadron levels up to Hq USAF. The 1,725 Policy Board sample consisted

of two subsets. The 485-job subset had been rated in the pilot study in 1974. The 1,240-job subset used in this field study was rated in an identical manner as the 485-job subset. Two copies of the job descriptions were made. Job descriptions were randomly sorted and bound into folders, 25 per folder. Two copies of each job description were made so that the same job would be rated by two different METs. This allowed a comparison of METs' rating behavior. There was little difference between the way METs viewed jobs as reported earlier by Stacy et al., 1975.

A second, current, sample set consisting of over 11,000 jobs was collected during the pilot and main studies. During the main study development, current jobs were stratified across grade and Duty AFSC to assure that positions selected by the METs in the field were representative of the non-aircrew officer population to which the technology would be applied. The 1975 UDL of Air Force jobs was used to specify which grade within AFSC should be selected by the MET as a category for sampling. In all, 11,137 jobs were specified as potential samples in 53 career areas across all grades.

METs were instructed to randomly sort and bind the new job descriptions which they collected, with twenty-five descriptions to a folder.

Data Collection and MET Raters

The samples were taken using 122 METs (see Appendix F) consisting of 954 raters covering all Air Force commands both overseas and within the continental U.S. during 1974—1976. Ratings were obtained for the 1,240 Policy Board job descriptions which had been mailed out, and for 9,634 which METs had gathered based on the preselected grade by AFSC classification sample specification. METs then mailed all materials, including the job descriptions, ratings, and rater background information to AFHRL. Upon receipt, ratings obtained on the 1,240 Policy Board jobs were merged with the 485 job ratings from the pilot study after screening for completeness. Only one of the 106 METs which received Policy Board jobs failed to return ratings.

Likewise, the returned 9,909 current jobs which had been collected from the 11,137 specified (89% returned) were screened for rating completeness. Of these, 275 jobs were eliminated due to too few ratings, inattentive or uncooperative raters, or illegible position numbers, leaving 9,634 jobs which were merged with the 1,687 current jobs from the pilot study. This resulted in job ratings for 11,321 jobs used for computing rater reliabilities. Of those 11,321 jobs, 129 did not contain UDL grade information essential for computing projections. The 129 jobs were included in reliability computations and were removed for subsequent projection application. The projection job set, cutting across 54 career areas by grade is presented in Appendix G.

An average of 13.61 rating judgments were provided on job factors based on the benchmark scales for each position in the 1,725 job sample. The new 11,321 current jobs reflected an average of 6.95 MET ratings for each job considered. In all, 13,046 non-aircrew officer position descriptions were judged on 10 grade factors and a 16-point grade scale resulting in over 143,000 separate job evaluation judgments obtained from 954 trained MET raters. Means and standard deviations for the factors and scale are presented in Appendix H.

Of the 954 Air Force rater personnel, 591 indicated they were enlisted E-4 to E-9, 175 were officers (0-1 to 0-5), 184 checked civilian (GS-5 to GS-14), and four failed to respond to this background information item. Years of experience in management engineering or manpower ranged from 1 to 28 years, with an average of 7 years 2 months of experience for the typical rater. Over 82% of the raters responding had completed either the Air Force Management Engineering course or the Army Management Engineering Training Agency's work methods and standards course. All major commands listed on the rater form were represented. Of the larger percentages reported by raters, 21% indicated they were assigned to a Strategic Air Command (SAC) unit, 12% to a Tactical Air Command (TAC) unit, and

11% to Air Training Command (ATC) installations. The number of raters at each MET ranged from 5 to 30, with an average of 7.7 raters per MET (see Appendix F). Based on these qualifications, the MET raters were well-trained and experienced, and a good mix of MET installations, representative of the MET force in the field, was used in the study.

III. RESULTS AND DISCUSSION

The data analyses employed in this study consisted of development of a grade-determining equation, validity calculations, construction of a grade conversion table, and computations of inter-rater reliabilities for sample sets. Each phase of the data analysis is presented below as a separate section.

Development of the Regression Equation (N = 1,725 Policy Board Jobs)

The equation used in the OGR technology consists of eight variables which renders a weighted composite score based on five grade-defining factors (special training, communication, decision making, planning, and management), two levels of organization information (level of organization, level of job within organization), and the job incumbent's supervisor's judgment of the appropriate grade for the job. These variables were isolated in previous studies (Christal, 1965; Hazel, Christal, & Hoggatt, 1966; Stacy et al., 1975) and were found to be stable grade-defining variables. Though jobs were rated in terms of 10 factors by METs (Appendix C), a regression analysis indicated that these five were more definitive of grade.

Previously, the grade judgment by the MET (or rater) on the 16-point scale (Appendix D) had been entered into the equation as a variable. Since this study constituted the final research test of the technology before it would be submitted for possible implementation, this variable was removed from the equation and a new equation was recomputed and evaluated. This was done because the 16-point scale mean value assigned by the MET raters to 1,725 jobs was 6.9 (see Appendix H) or a composite score equivalent to borderline low major. Yet, the average composite score rendered by the equation would be 39.0 which, when converted, centers on middle major, creating a disparity of about nine composite points. This shows that MET raters tended to slightly deflate their judgments of grade when making a judgment on the 16-point Policy Board scale, but when using the benchmark scales, their judgments, tempered with other equation variables, were slightly higher. Such a condition could easily lead to an inflationary tendency on the part of a rater if the appropriate grade assigned to a position by the equation is always slightly above the judged grade. In the operational use of the technology, the raters would attempt to bring their judgments in line with the grade assigned by the technology. In doing so, every time they increased their grade judgment value, the equation would again adjust the assigned grade level upward by several points, resulting in an inflationary trend.

Regression analysis, using the Policy Board decisions as the criterion, and with five factors, two levels of organization information, and the supervisor's judgment of the appropriate grade used as predictors, produced the validity coefficient R = .90. The multiple regression grade prediction equation may be expressed in general linear model form (Bottenberg & Ward, 1963; Ward & Jennings, 1973) as shown in formula 1:

$$Y' = f_1F^{(1)} + f_2F^{(2)} + f_3F^{(3)} + f_4F^{(4)} + f_5F^{(5)} + l_1L^{(1)} + l_2L^{(2)} + g_1G^{(1)} + g_2G^{(2)} + g_3G^{(3)} + g_4G^{(4)} + g_5G^{(5)} + c \quad (1)$$

where Y' is a predicted composite score, and the weights and predictor variables associated with each score are as shown in Table 3.

Table 3. **Regression Weights and Variables for OGR Equation**

Weights			Predictor Variables	
Symbol	Raw	Integer	Symbol	Description
f_1	.166	1	$F^{(1)}$	Factor 2-Special training and work experience
f_2	.138	1	$F^{(2)}$	Factor 5-Communication skills
f_3	.089	1	$F^{(3)}$	Factor 7-judgment and decision making
f_4	.129	1	$F^{(4)}$	Factor 8-Planning
f_5	.459	3	$F^{(5)}$	Factor 9-Management
l_1	.118	1	$L^{(1)}$	Level of organization
l_2	.205	1	$L^{(2)}$	Level of job within organization
g_1	-.827	-12	$G^{(1)}$	1 if Lieutenant, 0 otherwise
g_2	-.533	- 9	$G^{(2)}$	1 if Captain, 0 otherwise
g_3	.000	- 5	$G^{(3)}$	1 if Major, 0 otherwise
g_4	1.424	9	$G^{(4)}$	1 if Lt Colonel, 0 otherwise
g_5	3.167	12	$G^{(5)}$	1 if Colonel, 0 otherwise
c	1.335		(Regression constant)	

Correlations from the factors and variables in the study were analyzed with a triple correcting regression routine (Ward, Buchhorn, & Hall, 1967, Ward, Hall, & Buchhorn, 1967) which resulted in the reported raw weights for the variables. For simplicity in application of the technology, the raw weights were adjusted and simplified, converting the weight into an integer value rather than using the decimal weight. Although the result was some loss of predictive efficiency (R = .8989 to R = .8958), the loss is more than compensated for by the resulting simplicity in computation. The loss in predictive efficiency is slight when compared across R^2 or percent of efficiency of prediction dimensions. When the former equation value R = .8989 is squared, it constitutes an R^2 value of .8080 or 80.80%. An R^2 value (.8025) for the simplified equation represents 80.25% or a loss of about .5% in predictive efficiency. A loss of .0055 from an R^2 based on 1,725 jobs, though statistically significant due to such large sample size, is of such small magnitude in practical application terms as to be inconsequential in the validation of the method. The simplified computation uses whole number weights, and in the case of multiplying by 1, uses the mean value for factor ratings and the reported value for level of organization variables.

Validity (N = 1,725 Policy Board Jobs)

Table 4 presents validities of variables included in the MET-applied simplified integer equation based on 13.61 ratings. As shown on the table, the validity of the final weighted composite is .90 against

the original Policy Board grade evaluations, a very high index of concurrent agreement. This value indicates that the grade determination equation can be applied in a consistent and systematic manner using MET rater judgments about non-aircrew officer jobs.

Table 4. **Validities of Variables in MET Applied Integer Weight Grade Equation for N = 1,725 Jobs**

Predictor Variable	Validity
Factor 2 - Special Training and Work Experience	.65
Factor 5 - Communication	.72
Factor 7 - Judgment and Decision Making	.74
Factor 8 - Planning	.78
Factor 9 - Management	.79
Level of Organization	.50
Level of Job Within Organization	.47
Supervisor's Judgment of Grade for Job	.78
Final Grade Evaluation Composite Score	.90

Construction of the Research Conversion Table (N = 1,725 Jobs)

In addition to the equation being developed, the predicted composite scores were computed and arrayed in order from the highest composite score of 84.0 to the lowest score of 5.1 for jobs in the 1,725 job set. To establish a link between the composite score value and the recommended military grade associated with it, (colonel, lieutenant colonel, major, captain, or lieutenant), the following procedure was employed. The number of jobs identified by the Policy Board for any given grade were counted; for example, in the case of colonel, there were 142 jobs. Since the composite scores are ranked from high to low, the top 142 composite scores are equivalent with the grade of colonel. The composite score of the last colonel on this list is 66.4. This is the lowest composite score any job may have and still be identified as a colonel's position. A job with a composite score of 66.3 is declared to be the first or most highly experienced lieutenant colonel position. The Policy Board identified 298 lieutenant colonel jobs. Counting down again in the same fashion as was done for the colonel jobs, the 298th job has a score of 50.6. This is the lowest score any job can have and still be declared a lieutenant colonel job. Therefore, scores *between* the values of 66.4 and 50.5 are converted to the grade of lieutenant colonel. The remaining grade cutoff scores were determined for the remaining grades in a similar fashion. Since the Policy Board judged three experience levels within each grade (16-point scale), except for general officer, this information was used to construct a table of cutoff scores which equate to a given level of experience within each grade. After the initial set of cutoff scores had been determined, each cutoff score was then measured from each other score above and below it to compute the inter-score interval. The resulting inter-score intervals (ISI) with corresponding cutoff scores and grade levels are presented in Table 5.

Table 5. **Inter-Score Intervals From Initial Conversions**

16-Point Scale, Grade, and Experience Level	Initial Cutoff Score Conversion	Resulting Inter-Score Interval
16 General		
15 High	79.6 & above	
14 Middle Colonel	73.4	6.2
13 Low	66.4	7.0
		4.6
12 High	61.8	5.3
11 Middle Lt Col	56.5	5.9
10 Low	50.6	6.8
9 High	43.77	7.3
8 Middle Major	36.5	5.7
7 Low	30.85	4.9
6 High	26.0	6.3
5 Middle Captain	19.7	6.7
4 Low	13.0	4.3
3 Lieutenant	8.7 & below	

As indicated, there is a variation between inter-score intervals from 4.3 to as much as 7.3 composite score points. In the 1964 Policy Board sample of 3,575 jobs, the 16-point conversion table which resulted from the OGR equation distributed ISIs between cutoff scores in a relatively equal manner. (Hazel et al., 1966, p. 17). In this study based on the 1,725 jobs taken from the 3,575 job set, the interval sizes are irregular. As the number of positions in the distribution of jobs increases, it would be expected that ISI differences would decrease. Since the conversion table was to be applied to the 11,000 current job sample, irregular interval points would result in slight distortions of the number of jobs allocated to any given experience level or grade. To avoid the occurrence of such discrepancies, the ISI values were fitted with several polynominal functions to smooth out the variations between points. The best fitting curve across the ISIs proved to be a second-degree polynominal or quadratic function of the general form,

$$Y' = a + b_1X + b_2X^2 \qquad (2)$$

where Y' is a predicted ISI point value and X is the grade and experience level.[1] The a is a regression constant, and b_1 and b_2 are regression weights used in the equation. Based on these computations, minor adjustments were made to several ISIs, adding or subtracting parts of composite score values to smooth out the variations. The ISI adjustments were slight, ranging from .07 to 1.2 score points, however, the precision attained at this level of the analysis would assure less distortion when the conversion table would be applied on a much larger distribution. The resulting conversion table should allocate a more even or true-to-life picture since in the real world there are over 62,000 jobs in the non-aircrew force rather than the 1,725 on which this table is based. The research conversion table is presented in Table 6.

[1]The polynomial form of a second-degree curve displays one change of direction rather than fitting a straight line to the 16-point ISI distribution of values. The equation resulted in a curve, slightly bowed downward in the middle and higher on the ends running across the grade distribution ISIs from lieutenant to colonel. The slightly bowed or depressed portion of the polynomial curve fitting this distribution occurs across the ISIs at the grade of major. Smoothing of the distribution of ISIs permitted the construction of a more uniform conversion table.

Table 6. Research Grade Conversion Table

Weighted Composite Cumulative Score	Converts to Experience Level	Converts to Grade
79.6 and above	15 Sr Col	Colonel
73.5 to 79.5	14 Mid Col	
67.4 to 73.4	13 Jr Col	
61.4 to 67.3	12 Sr Lt Col	
55.5 to 61.3	11 Mid Lt Col	Lt Colonel
49.6 to 55.4	10 Jr Lt Col	
43.7 to 49.5	9 Sr Maj	
37.7 to 43.6	8 Mid Maj	Major
31.7 to 37.6	7 Jr Maj	
25.6 to 31.6	6 Sr Capt	
19.4 to 25.5	5 Mid Capt	Captain
13.0 to 19.3	4 Jr Capt	
12.9 and below	3 Lt	Lieutenant

Note.- The cutoff points for composite scores reflected above were developed from the 1964 Air Force Policy Board. The present table does not address the problem of grade distributions to support orderly career progression plans. Some adjustments would have to be made to the conversion table cutoffs to accommodate career progression requirements, particularly at the transition levels from captain to major and lieutenant to captain.

Potential Conversion Table Modifications

When projections were made using the OGR equation and the research conversion table, results indicated a requirement for more majors and fewer captains and lieutenants than called for by the UDL (Hazel & Finstuen, 1980). While the OGR-stated requirements for major positions may be correct in terms of the content and responsibilities associated with these positions, it may not be possible for the Air Force to produce this many majors from the stated captain/lieutenant base because of present career progression plans. Likewise, for captains and lieutenants, the conversion table reflected a requirement for considerably more captains than lieutenants, which would be even more unreasonable to implement.

The problem is generated by the fact that the 1964 Policy Board recognized very few non-aircrew positions as being appropriately filled by lieutenants; yet the Air Force is a closed system, and (except for physicians) captains are not hired directly from the civilian sector. For this reason, it may be necessary to identify a certain proportion of the lower-level OGR captain positions and declare them to be lieutenant positions on the UDL. Similarly, it may be necessary to declare a small proportion of the lower-level OGR major positions to be captain positions on the UDL. Such actions in no way suggest that the requirements stated by the 1964 Policy Board for such positions are incorrect; rather, it is a recognition of the need to link career progression programs with job requirements in order to provide reasonable promotion points. It should be recognized that the OGR equation yields a continuous distribution of composite scores reflecting the job responsibility levels for positions. This would permit complete flexibility in redefining cutting points to incorporate career progression considerations into an operational conversion table for lower grades.

Some Final Validity Concerns (N = 1,725)

Figure 3 demonstrates the relationship between the MET-judged converted composite scores using the research conversion table, and the Policy Board grades assigned to these 1,725 officer jobs. On the scale, three points are equivalent to one officer grade, i.e., points 7, 8, and 9 constitute the rank of major. For those squares on the diagonal, there is exact agreement between the final grade equation converted score and the assigned grade given to the same job by the Air Force Policy Board. Positions plotted one square off the diagonal constitute a judged position within one-third grade level. Positions appearing two squares from the diagonal square likewise constitute a MET judged position within two-thirds grade level in agreement with the Policy Board. Of these 1,725 jobs, 1,614 or 94% of the jobs fall on the diagonal or within two-thirds grade level from the diagonal. Of the remaining jobs, it is further apparent that only 35 or 2% of the jobs judged by METs are more than one full grade, 3 grade levels, away from the diagonal. With such a high level of agreement between MET members and the Policy Board, it appears that the newly derived grade determination equation and conversion table produce very dependable results and that METs can routinely duplicate the 1964 Air Force Policy Board decisions using the benchmark scale procedures and factors.

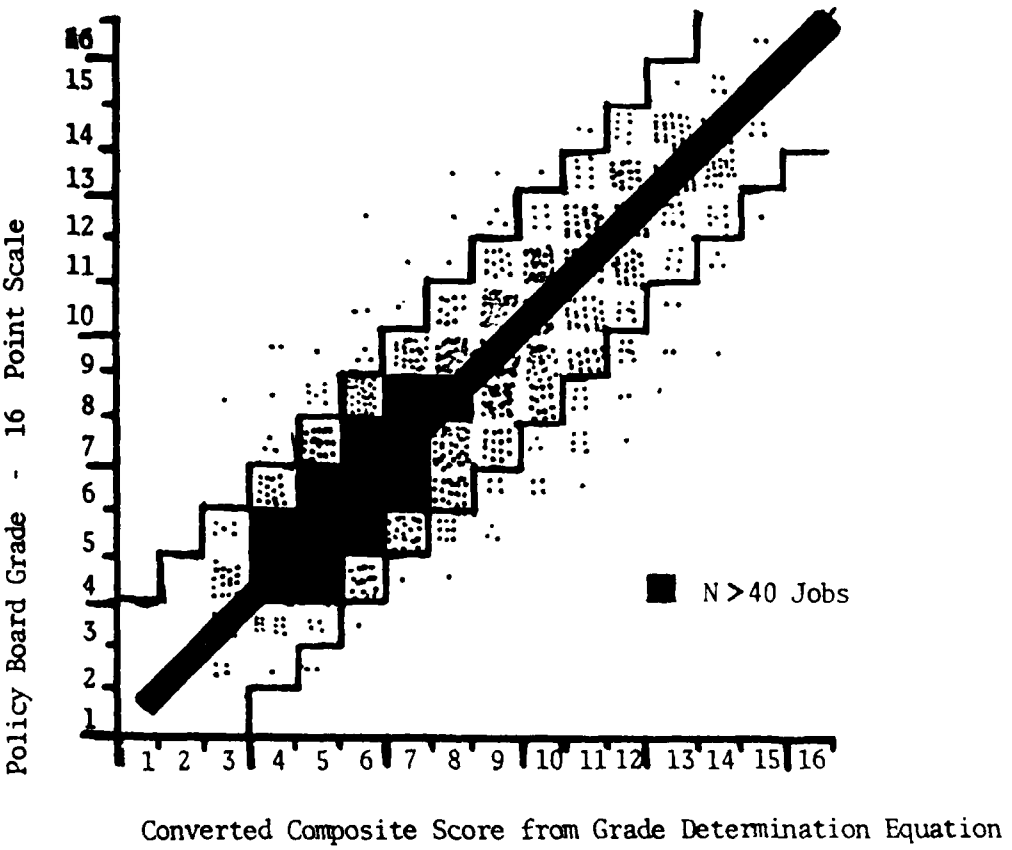

Figure 3. **Comparison of grades assigned to 1,725 positions by the 1964 Policy Board and the present OGR Grade determination equation.**

Comparisons Using N = 1,725

The following comparisons may be made between the Policy Board grade allocations, the OGR converted grade composite scores, the UMD grade assigned to the job, and the actual grade of the job incumbent for the 1,725 case sample (Table 7).

Table 7. **Comparisons of Grade Level for 1,725 Jobs**

Grade Level	Policy Board	OGR	UMD Grade	Incumbent's Actual Grade[a]
Colonel	142	133	141	128
Lt Colonel	298	332	292	311
Major	605	541	478	419
Captain/ Lieutenant	608	719	814	827
Total	1,725	1,725	1,725	1,725

[a]Includes 39 warrant officers and one incomplete response.

It can be seen that the OGR equation and conversion table call for fewer colonels and more lieutenant colonels than either the Policy Board or the UMD authorization for these 1,725 jobs. The number of OGR grades assigned to majors, though less than the Policy Board grades, is more than the number of grades allotted by the UMD or the actual number of incumbents in the grade. This is the same general finding as from previous studies which have stated that Air Force jobs presently filled by captains and lieutenants could more appropriately be filled by majors based on the content of the job and the level of responsibility. For operational use, simple adjustments could be made to the conversion table to encompass the present career progression plan. In this respect, captains and lieutenants, as junior officers, could be viewed as career trainees when they are filling jobs requiring a higher grade level.

The correspondence of the Policy Board decisions to the OGR composite in terms of the appropriate grade for the 1,725 jobs resulted in a zero-order correlation coefficient of .90. Table 8 also reports the correlations between various other grade sources for the 1,725 jobs.

Table 8. **Correlations between Policy, OGR, UMD, and Actual Grade for the 1,725 Criterion Case Sample**

	OGR	UMD	Actual Grade of Incumbent
Policy Board Mean Grade Rating	.90	.76	.60
OGR		.80	.62
UMD			.65

The Policy Board grade judgments were made with a 16-point scale. As shown by the table, the highest order of agreement was reflected between the OGR and the Policy Board; however, all correlations appear to be substantial and implementation of the OGR should prove to be consistent with existing grades based on this information. The critical issue would not address the changes in total grade structure as much as the required realignment of grades for jobs within career fields. This was found to be supported in the earlier studies in examining the Policy Board decisions, and also proved to be implicit in the judgments of the MET members in terms of job content and responsibility for various job descriptions used in the major field test of the technology.

Inter-Rater Reliability Analyses (N = 1,725 Jobs)

Table 9 presents the inter-rater reliabilities (R_{kk}) computed for an average of 13.61 ratings using an intraclass correlation coefficient (Lindquist, 1953).

Table 9. **Inter-Rater Reliabilities (R_{kk}) of MET Raters for 1,725 Policy Board Jobs**

Equation Variable	R_{kk}[a]
Factor 2 - Special Training and Work Experience	.92
Factor 5 - Communication Skills	.92
Factor 7 - *Judgment and Decision-Making*	.91
Factor 8 - Planning	.92
Factor 9 - management	.91
Predicted Grade Composite Score	.98

[a] k = 13.61 ratings per job.

As indicated, there is high agreement among MET raters as to the level of job content and responsibility using benchmark scales on the five equation factors. The R_{kk} value may be interpreted as follows.

Say a mean value is computed for each of the 1,725 jobs from ratings given by the MET raters. Further, another set of ratings are collected from a similar set of MET raters for each of the same 1,725 jobs. Again a mean value is computed for each of the same 1,725 jobs from ratings given by the new set of raters. If a correlation coefficient were computed between the first and second sets of 1,725 job mean ratings, the result would be the R_{kk} value, which is then an index of the stability of the job ratings given on a factor. Equation factors using mean ratings are all .91 or greater.

Inter-Rater Reliability Analyses (N = 11,000 Current Jobs)

Inter-rater reliabilities were also computed for the current set of jobs. This allowed assessment of the reliability of measurement for somewhat less ratings per job (6.95 versus 13.61 obtained in the 1,725 case sample). Reliabilities reported for the current job sample are correspondingly lower based on the average number of ratings per job as shown in Table 10, but still show a high degree of stability, with the predicted composite score dropping only .01 from the previous .98. This provides a high assurance that the mean values entering into the regression equation were stable and provided a sound basis upon which the projections could be made. Expectations are also high that the technology will provide like results when used on a day-to-day basis in future applications at the METs. The high agreement assures that all MET raters, many of whom participated in this study, would be able to apply this technology with little or no difficulty and could produce comparable results as shown here.

Table 10. **Inter-Rater Reliabilities (R_{kk}) of MET Raters for 11,321 Current Jobs**

Equation Variable	R_{kk}[a]
Factor 2 - Special Training and Work Experience	.85
Factor 5 - Communication Skills	.85
Factor 7 - Judgment and Decision-Making	.84
Factor 8 - Planning	.87
Factor 9 - Management	.87
Predicted Grade Composite Score	.97

[a] k = 6.95 ratings per job.

Inter-Rater Reliability Analyses (Rater Types)

The 950 MET raters responding to background questionnaire items consisted of 591 enlisted, 184 civilian, and 175 officer MET members. Individual inter-rater reliabilities for each rater type were computed for jobs with two or more raters. In implementation of the technology at the METs, each rater will be asked to rate a complete set of jobs, so the average number of ratings per job will be the same as the number of raters making the ratings. The inter-rater reliabilities of composite scores reported here were transformed to reflect reliabilities employing seven raters using the Spearman-Brown prophecy formula (Guilford & Fruchter, 1973). Results are indicated in Table 11.

Table 11. **Inter-Rater Reliabilities (R_{kk}) of Seven MET Raters for the 1,725 and 11,321 Case Samples**

	Policy Board Jobs		Current Jobs	
Rater Type	R_{kk}	Jobs Rated	R_{kk}	Jobs Rated
Enlisted	.96	1,714	.96	9,817
Civilian	.96	900	.97	4,200
Officer	.97	1,365	.98	5,062
Total	.96	1,725	.97	11,321

Appendix F indicates that some METs have available from 15 to 18 raters for making grade judgments, while other smaller METs have only 5 or 7 raters available. In an operational setting, the number of raters available for making benchmark judgments will affect the reliability of judgments on those factors. From results shown in Appendix I, it is evident that the reliability of the job evaluation factors varies depending on the number of raters making ratings. Based on this information, it is recommended that at the very minimum, five raters can be used; however, as the results show, seven or more raters will enhance the reliability of judgments. All 10 factors are included since all 10 were used in the field test; however, only five of the factors are presently used in the grade determination process. Other factors may be of operational use to the manpower community for purposes or requirements other than job evaluation for grade assignment.

In addition to the number of raters suggested for use in an operational setting, the type of rater (enlisted, civilian, or officer) may have a bearing on the reliability of job evaluation factor judgments.

Appendix J demonstrates that from the 1974 study to the 1976 study officers consistently demonstrated a higher reliability of judgment than the other two groups. Civilians did slightly better than enlisted raters, however, all raters demonstrated a high level of reliability in their judgments. Where reliability is a concern for manpower estimates, a tradeoff can be made between the number of raters and the types of raters. Obviously, if only five or six raters can be used in a job evaluation project, it would be best in reliability terms to use officer raters for this task. Likewise, if many raters are to be used, enlisted personnel could be selected with no appreciable decrease in reliability results.

IV. SUMMARY

This report documents the method employed by Hazel and Finstuen (1980), as well as the resulting projections. METs were used in the development and refinement of a method which systematically and reliably assigns the appropriate military grade to a job based on the job content and level of responsibility of the job. The field test documented here is a continuation of the pilot study initiated in 1974.

This phase of the OGR research involved refining the grade determination regression equation in order to prepare the technology for full operational implementation. This involved removing one of the variables, MET judgment of grade, from the multiple linear regression model and recomputing the predictive efficiency (R = .90) against the decisions of the Air Force Policy Board.

A further extension of the research involved construction of a grade conversion table which converts predicted composite scores from the regression analysis into military grade and level of experience. Cutoff scores were computed and modified to compensate for slight irregularities of inter-score intervals in the table.

The conversion table, when applied, produces a substantial increase in the statement of requirements for major positions over those of the present UDL. This is consistent with the findings reported in the 1964 OGR study. However, in order to establish a reasonable career progression system, it may be necessary for a number of borderline major/captain positions to be listed as captain on the UDL. The cutting point on the OGR conversion table separating captain and lieutenant positions should be established by Hq USAF to yield the most appropriate ratio for career progression purposes.

Application of the equation and the conversion table resulted in highly consistent measures and were comparable with previous decisions made by the Policy Board.

Inter-rater reliabilities for sample sets were computed, varying the number of raters and types of raters based on the Spearman-Brown prophecy formula.

The OGR technology provides a scientifically based job evaluation system for established non-aircrew officer positions in the Air Force. Grade evaluations may be made by trained METs in the course of their manpower surveys. The technology also provides a defensible statement of Air Force grade requirements based on the content and responsibility of military jobs. The methodology presented here may serve a dual purpose in that the OGR method may be used to evaluate a single job and that grades for jobs in the non-aircrew officer force can be compared across specialties in terms of content and job responsibility.

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APPENDIX A: AIR FORCE OFFICER POSITION DESCRIPTION, INSTRUCTIONS AND PRIVACY ACT STATEMENT

AIR FORCE OFFICER POSITION DESCRIPTION

INSTRUCTIONS

This survey is directed by Hq USAF to identify and describe the work performed by officers in the Air Force. The Air Force needs precise information about the duties, tasks, and requirements of officer jobs in order to maintain the classification structure, to make appropriate grade allocations, to define incumbent qualifications, and to guide other manpower and personnel actions. Participation in this survey gives you an opportunity to provide accurate information about your job in support of improved Air Force management.

You are requested to complete the survey according to the following instructions

1. ASSIGNMENT INFORMATION (Page 4): Fill in the required data or check the one box in each block that applies to you.

2. JOB DESCRIPTION (Pages 2 and 3) On these pages provide typewritten* information which accurately and comprehensively describes your job.

   a. In the JOB NAME OR TITLE block, record a name or title which is descriptive of your job.

   b. In the JOB CONTEXT block, locate your job within the organizational structure.

      Examples: (1) THIS JOB IS IN THE HEAVY EQUIPMENT BRANCH DIRECTLY UNDER THE BASE MOTOR POOL COMMANDER, WHO REPORTS TO THE M & S GROUP COMMANDER.

      (2) THIS JOB IS IN THE TARGETS SECTION OF THE OPERATIONS PLANNING BRANCH OF WING HQ.

   c. In the blocks under DUTIES AND TASKS, list statements that describe your job. Consider significant work activities such as those involved in commanding, planning, organizing, directing, monitoring, coordinating, reviewing, inspecting, evaluating, supervising, and operating. Use as many blocks as you consider necessary. The statements you provide should clearly define your job.

      Example: Duty A. DIRECTING MATERIEL CONTROL FUNCTIONS
      TASKS (1) ASSIGN PRIORITIES TO REQUISITIONS
      (2) COORDINATE REQUIREMENTS FOR MOBILITY DEPLOYMENT
      (3) MONITOR SUPPLY BUDGET
      (4) PROCESS REQUESTS FOR LOCAL MANUFACTURE OF ITEMS
      (5) REQUISITION TIME CHANGE ITEMS

      First, list all the major duties you perform; then go back and list the appropriate tasks under each duty. Describe your normal job. Omit temporary variations in your work which are not part of your regular assignment. Ignore additional duties unless they constitute a significant part of your job.

   d. In the JOB REQUIREMENTS block, enter additional statements that describe any unusual requirements of your job for the factors below.

      COMMUNICATION SKILLS — ORIGINALITY, INGENUITY, & CREATIVENESS — MANAGEMENT
      INTERPERSONAL SKILLS — SPECIAL TRAINING & WORK EXPERIENCE — PLANNING
      WORKING CONDITIONS — JUDGMENT & DECISION MAKING — RISK
      FORMAL EDUCATION

      Examples: (1) WORKING CONDITIONS: JOB REQUIRES APPROXIMATELY 120 DAYS TDY ANNUALLY.

      (2) SPECIAL TRAINING & WORK EXPERIENCE: JOB REQUIRES A 30-DAY AF COURSE IN SPECIAL WEAPONS DELIVERY.

   e. In the JOB SUMMARY Block, write a three-or four-sentence summary description of your job.

   f. After you have completed pages 2, 3, and 4, sign in the space provided on page 4 and submit this form to your supervisor.

NOTE: Supervisor will review all entries, check a box to indicate his judgment of the most appropriate grade level for this job, sign the form, and return to your Management Engineering Organization.

*If typing service is not available, information should be clearly printed by hand.

POSITION DESCRIPTION
JOB NAME OR TITLE
JOB CONTEXT
DUTIES AND TASKS
DUTY A: Tasks
DUTY B: Tasks
DUTY C: Tasks
DUTY D: Tasks

DUTY E:

Tasks

DUTY F:

Tasks

DUTY G:

Tasks

DUTY H:

Tasks

JOB REQUIREMENTS

JOB SUMMARY

(1 1-9)

JOB DESCRIPTION NUMBER TO BE ASSIGNED BY MET

LAST NAME | FIRST NAME | M.I.

ORGANIZATION (10–44)

BASE OR INSTALLATION (45 78)

SOCIAL SECURITY ACCOUNT NUMBER

Number (2: 10-19) | Suffix (20-21)

YOUR PRIMARY AFSC

Prefix (22) | Number (23–26) | Suffix (27)

MAJOR AIR COMMAND (44)

- AAC A
- USAFA B
- ADC C
- USAFE D
- AFAFC E
- ALC F
- AFSC H
- ARPC I
- ATC J
- AU K
- USAFSO L
- AFRES M
- Hq USAF N
- AFDAA O
- Hq Comd P
- MAC Q
- PACAF R
- SAC S
- TAC T
- USAFSS U
- AFCS Y
- Other Z

Specify

UDL AUTHORIZED GRADE FOR YOUR POSITION (28)

- Col 6
- L/C 5
- Maj 4
- Capt 3
- Lt 2
- W/O 0

YOUR PRESENT GRADE (29)

- Col 6
- L/C 5
- Maj 4
- Capt 3
- 1/Lt 2
- 2/Lt 1
- W/O 0

GRADE OF YOUR IMMEDIATE SUPERVISOR (30)

- Civ A
- Gen 7
- Col 6
- L/C 5
- Maj 4
- Capt 3
- 1/Lt 2
- 2/Lt 1

YOUR DUTY AFSC

Prefix (31) | Number (32–35) | Suffix (36)

TOTAL MONTHS IN YOUR DUTY AFSC (37 39)

TOTAL MONTHS ACTIVE FEDERAL MILITARY SERVICE (40–42)

SEX (check one)

M 1 | F 2 (43)

LEVEL OF YOUR ORGANIZATION (check one) (45)

- DOD, Hq USAF 9
- Hq Maj Air Comd 8
- Numbered AF (or Equiv) 7
- Air Division (or Equiv) 6
- Wing (or Equiv) 5
- Group (or Equiv) 4
- Squadron (or Equiv) 3
- Detachment (or Equiv) 2

LEVEL OF YOUR JOB WITHIN YOUR ORGANIZATION (check one) (46)

- Command Element 7
- Directorate, Dept, Office (or Equiv) 6
- Division (or Equiv) 5
- Branch (or Equiv) 4
- Section (or Equiv) 3
- Unit (or Equiv) 2

HIGHEST LEVEL OF YOUR EDUCATION (check only one) (47)

- Doctoral Degree 9
- Master's Degree 8
- Some Post-Grad Work 7
- Bachelor's Degree 6
- 3 Years College 5
- 2 Years College 4
- 1 Year College 3
- High School Grad 2
- Non High School Grad 1

YOUR MAJOR FIELD OF STUDY (check only one) (48)

- Other (Specify) 9
- Military Science 8
- Social Science 7
- Medical, Legal 6
- Business, Management 5
- Engineering 4
- Arts, Humanities 3
- Physical Science 2
- Education 1

SUPERVISOR'S JUDGMENT OF MOST APPROPRIATE GRADE FOR THIS JOB (49)

- Gen 7
- Col 6
- L/C 5
- Maj 4
- Capt 3
- Lt 2

COMPLETED BY:

Signature | Duty Phone | Date

REVIEWED BY: *SUPERVISOR CHECK ONE →*

Signature of Immediate Supervisor | DAFSC | Date

★1975-G.P.O.-1709-M/874-549/153

Instructions to Incumbent

To: Designated Officer

1. As requested by Hq USAF Directorates of Manpower and Organization (PRM) and Personnel Plans (DPX), the Air Force Human Resources Laboratory has undertaken the development and testing of a technology for systematically evaluating officer positions for appropriate grades based on job descriptions from a representative sample of officers. You have been selected to assist in fulfilling this requirement.

2. The collection of job information is being accomplished by manpower and management engineering personnel. You participation in this project will assist the Air Force in achieving reasonable and defensible statements of officer grade requirements.

3. Provide all requested information on the attached Air Force Officer Position Description form, then give it to your immediate supervisor for review and rating concerning an appropriate grade authorization. If your immediate supervisor is not available, his replacement or your secondline supervisor should accomplish the requested actions. The completed form should be returned to your Management Engineering Team (MET) or manpower organization within 10 working days after your receipt.

4. Since your name and SSAN are required on the AF Officer Position Description, a Privacy Act Statement is provided for your retention.

5. Accomplishment of the Position Description is authorized under Hq USAF/PRMRE letter, Subj: Field Test for Developing Officer Grade Determination Procedures, 31 Oct 1975. Any questions concerning this request should be referred to your MET commander or Manpower/Management Engineering Team project officer.

A T T A C H M E N T S

1. AF Officer Position Description
2. Privacy Act Statement

1. AUTHORITY

10 U.S.C. 8012 Secretary of Air Force, Powers, Duties, Delegation by Compensation. E09397, 22 Nov 43, Numbering System for Federal Accounts Relating To Individual Persons.

2 PRINCIPAL PURPOSE(S)

This information will be used for Air Force manpower research and development; to test an officer grade determination technology, and guide manpower planning. Use of name and Social Security Account Number is necessary for identification of individual records and job or position numbers.

3. ROUTINE USES

Information provided by individual respondents will be treated confidentially for the stated purposes. Individual identity will not be revealed except in terms of a job or position number. Job information from groups of respondents, who will not be identified by name or Social Security Account Number, will be used for the following purposes:

a. Evaluation of officer grade structures.

b. Construction of a conversion table for officer grade evaluation procedures.

c. Manpower and personnel research.

d. Other manpower management systems applications.

4. WHETHER DISCLOSURE IS MANDATORY OR VOLUNTARY AND EFFECT ON INDIVIDUAL OF NOT PROVIDING INFORMATION

Completion of the Air Force Officer Position Description by job incumbents is mandatory. Failure to provide information requested will significantly detract from the Air Force's ability to evaluate officer grade structures; perform manpower requirements research; and perform manpower management systems applications.

FORM NUMBER AND DATE	PRIVACY ACT STATEMENT	DATE PRIVACY ACT STATEMENT ASSIGNED *(Month and Year)*
AFPT 80-000-23, 12 Sep 75	**PRIVACY ACT STATEMENT**	November 1975

APPENDIX B: RATER INSTRUCTIONS, BACKGROUND INFORMATION FORM AND JOB RATING FORM

Field Test of Officer Grade Determination Procedures

RATER INSTRUCTIONS

This research study is designed to test a methodology by which management engineering and manpower personnel can apply job evaluation factors to objectively determine officer grades based on job content and responsibilities. The success of this study depends on your cooperation in explicitly following these instructions.

Your MET/Manpower organization commander or project officer is responsible for this study and will answer any questions you may have about requirements. Your task is to (a) rate a number of officer job descriptions on 10 job evaluation factors, and (b) estimate the appropriate grades for these jobs according to a grade code scale provided. Your independent judgments on the evaluation factors and proper grade code for each job are required, so do not confer with other raters about the ratings.

You will rate one or more folders of job descriptions as assigned by your commander or project officer. For this purpose, in addition to these instructions, you will be provided with a Rater Form, one or more folders of job descriptions, a Job Rating Form for each folder, a set of 10 Job Factor Scales, and a Grade Code Scale. Read these materials and accomplish the following steps.

Step 1. Complete the Rater Form. Print all information legibly in the spaces provided.

Step 2. Examine the first folder of job descriptions assigned by your project officer. Each folder contains approximately 25 descriptions collected by your organization. Do not change the sequence of the descriptions in the folder. Observe that a job number has been entered at the top of page 2 of each description.

A separate Job Rating Form has been prepared for use with each folder. Match the appropriate Job Rating Form with the folder under examination by verifying that the job numbers listed on the Job Rating Form correspond with the job numbers in the folder. Write your name and grade at the top of the Job Rating Form.

Step 3. Review the 10 Job Factor Scales on pages 1 though 10 following these instructions. Notice that each factor has 9 levels which are defined by representative job titles. Your task is to read the job descriptions in the folder and then rate the jobs on each of the 10 factors. For example, after reading the first job description, you will rate that description from 1 to 9 on Factor 1, Formal Education. If you feel the job description requires about the same level of education as the job titles listed at level 4 of the formal education factor, place the number 4 on the Job Rating Form

beside that job number under Factor 1. Then, rate that job on all the other factors (2 through 10) following the same procedure. In each instance, study the factor definition and job levels before making your rating.

Step 4. Next, examine the Grade Code Scale on page 11 after these instructions. Notice in the Grade Code Scale that there are three numbers associated with each grade level except General. The three numbers in a set are used to show three levels of experience. For instance, a 4 represents a Captain with a short time in grade, a 5 represents a Captain with an average time in grade, and a 6 represents a Captain with a long time in grade.

Step 5. After understanding the Job Factor and Grade Code Scales (steps 3 and 4), start making your ratings. Read the first job description and rate it on all 10 factors and the grade code. Write the factor ratings and proper number from the Grade Code Scale (1 to 16) in the appropriate blocks on the Job Rating Form beside the job number. Next, rate the second job description and continue until all the descriptions in the first folder assigned have been rated. Repeat the rating process for all remaining folders of job descriptions collected by your organization, as assigned by your project officer.

Step 6. In addition to the folders of descriptions collected by your organization, rate the Job Descriptions from a Previous Study (approximately 25 descriptions).* Copies of these descriptions have all been fastened into a separate folder, and a few of these descriptions may consist of three pages. If any of the job descriptions you are rating appear to include outdated equipment or organizational level, proceed as if the description were current.

Step 7. When you have finished rating each of the jobs in all of the folders assigned, attach each completed Job Rating Form to your Rater Form. Return all materials to your project officer or MET commander for review and consolidation.

---

* Certain METs designated by Hq USAF/PRMRE will not be required to provide ratings on these descriptions. Project officers will advise raters as appropriate.

RATER FORM

(1 1 -6)

LAST NAME **FIRST NAME** **MI**

ORGANIZATION AND BASE

SOCIAL SECURITY ACCOUNT

PREFIX (7 8) NUMBER (9-17) SUFFIX (18-19)

CHECK YOUR CLASSIFICATION/STATUS

☐ ENLISTED E1-E9 ☐ OFFICER O1-O6 ☐ CIVILIAN GS (20)

YOUR AIR FORCE DUTY AFSC

PREFIX (21) NUMBER (22-26)

YOUR PRESENT GRADE

(27-28)

TOTAL MONTHS IN PRESENT DAFSC

(29-31)

TOTAL MONTHS AT PRESENT MET

(32-34)

TOTAL MONTHS OF FEDERAL SERVICE

(35-37)

TOTAL MONTHS EXPERIENCE IN MANAGEMENT ENGINEERING/MANPOWER

(38-40)

MAJOR COMMAND (41)

A ☐ AAC	P ☐ HQ COMD	C ☐ ADC	E ☐ AFAFC	Y ☐ AFCS	F ☐ ALC	M ☐ AFRES	I ☐ ARPC
H ☐ AFSC	J ☐ ATC	K ☐ AU	N ☐ HQ USAF	Q ☐ MAC	R ☐ PACAF	Z ☐ OTHER	☐
S ☐ SAC	T ☐ TAC	B ☐ USAFA	D ☐ USAFE	L ☐ USAFSO	U ☐ USAFSS	O ☐ AFDAA	☐

HAVE YOU COMPLETED EITHER THE ME or AMETA WORK METHODS AND STANDARDS TRAINING COURSE?

☐ YES 1 ☐ NO 2 (42)

MAJORITY OF AIR FORCE CAREER EXPERIENCE SPENT IN: *(CHECK ONE)*

1 ☐ MANAGEMENT ENGINEERING

2 ☐ MANPOWER (43)

3 ☐ BOTH MANAGEMENT ENGINEERING AND MANPOWER

4 ☐ OTHER _____ (SPECIFY) (44-78)

JOB RATING FORM

RATER NAME

Last First MI Grade

JOB NUMBER	JOB FACTORS										GRADE CODE
	Formal Education 1	Special Training & Work Experience 2	Working Conditions 3	Originality, Ingenuity & Creativeness 4	Communication Skills 5	Interpersonal Skills 6	Judgment & Decision Making 7	Planning 8	Management 9	Risk 10	

APPENDIX C: BENCHMARK FACTOR SCALES

FACTOR 1 FORMAL EDUCATION. The amount of formal education required by the job. Consider the education obtained in high school, college, university, or professional school.

LEVEL 9

Staff Legal Officer, Military Affairs, Hq USAF
Computer Systems Design Engineer-Mathematician, Hq Major Air Command
Chief, Ballistic Program, Aerospace Test Wg

LEVEL 8

Physicist, General, Air Force Special Weapons Center
Bioenvironmental Engineer, Environmental Health Laboratory
Assistant Program Manager, C-5, Hq Major Air Command

LEVEL 7

Deputy Commander for Maintenance, Strategic Missile Wg
Electronic Systems Installation Officer, Electronics Installation Sq
Chief, Munitions Div, Hq Numbered Air Force

LEVEL 6

Chief Data Systems & Statistics, Combat Support Gp
Deputy Commander, Combat Support Gp
Asst Staff Electronics Officer, Combat Evaluation Gp

LEVEL 5

Assistant DCS/Personnel, Hq Air Weather Service
Aerial Reconnaissance Weather Officer, Weather Reconnaissance Sq
Armament Staff Officer, Inspector General Gp

LEVEL 4

OIC Armament & Electronics Branch, Consolidated Aircraft Maintenance Sq
Chief Personnel Div, Hq Combat Support Gp
Electronic Warfare Officer, Strategic Reconnaissance Sq

LEVEL 3

Chief Photographic Services Branch, Aerospace Reconnaissance Technical Wg
Chief Munitions Maintenance Branch, Munition Maintenance Sq
Organizational Maint Officer, Interceptor Fighter Sq

LEVEL 2

Chief Transportation Traffic Management, Transportation Sq
Group Supply Officer, Aeromedical Evacuation Gp
Base Fuels Officer, Fighter Wg

LEVEL 1

Vehicle Maintenance Officer, Transportation Sq
Food Service Officer, Combat Support Gp
Clothing Sales Officer, Combat Support Gp

FACTOR 2: **SPECIAL TRAINING AND WORK EXPERIENCE:** The extent to which the job requires knowledges and skills which must be acquired through special training courses or on-the-job experience. Disregard general courses given by Squadron Officer School, Command and Staff College, or War College.

LEVEL 9

Chief, Contract Pricing Branch, Hq USAF
Chief, Military Justice Division, Air Div
Space Vehicle Research Officer, Hq AF Special Weapons Center

LEVEL 8

Director, Reconnaissance & Electronic Warfare Operations, Major Air Command
Minuteman Trajectory Engineer, Aerospace Reconnaissance Technical Wg
Chief, Missile/Nuclear Safety Division, Technical Training Center

LEVEL 7

Missile Combat Crew Commander, Strategic Missile Sq
Chief, Target Intelligence Branch, Strategic Reconnaissance Wg
Chief, Maintenance Operations Div, Aerospace Test Gp

LEVEL 6

Chief, Consolidated Base Personnel Office, Bomb Wg
Flying Safety Officer, Hq Tactical Fighter Wg
Reconnaissance Aircraft Commander, Strategic Reconnaissance Sq

LEVEL 5

Co-pilot B-52, Bomb Sq
Pilot, Military Airlift Sq
Radar Evaluation Officer, Hq Major Air Command (Overseas)

LEVEL 4

Chief, Audio-Visual Center, Numbered Air Force
Electronic Warfare Officer B-52, Bomb Sq
Education-Training Officer, Major Air Command

LEVEL 3

Crypto Operations Officer, Communications Gp (Overseas)
Avionics Officer, Consolidated Aircraft Maintenance Sq
Flight Line Maintenance Officer, Organizational Maintenance Sq

LEVEL 2

Photographic Equipment Maintenance Officer, Avionics Maintenance Sq
Chief, Pay & Travel Branch, Combat Support Gp
Photographic Officer, Technical Reconnaissance Sq

LEVEL 1

Base Housing Officer, Combat Support Gp
Special Service Officer, Fighter Gp
Transportation Officer, Instrumentation Sq

FACTOR 3: WORKING CONDITIONS: The extent to which the job involves uncomfortable working conditions. Consider such conditions as isolation, irregular hours, monotony, prolonged vigilance, extensive TDY, and pressure to meet deadlines.

LEVEL 9

Forward Air Controller, Tactical Air Support Sq (Overseas)
Co-pilot KC-135, Air Refueling Sq
Commander, B-52, Bomb Wg

LEVEL 8

Pilot, Reconnaissance, Tactical Reconnaissance Sq (Overseas)
Tactical Fighter Pilot, Tactical Fighter Sq
Instructor Pilot, FB-111, Bomb Sq

LEVEL 7

Pilot, Search and Rescue, Aerospace Rescue & Recovery Sq
Weapons Controller, Aircraft Control & Warning Sq
Instructor Navigator, Transport, Military Airlift Sq

LEVEL 6

Electrical Engineer, Site Alteration Task Force
Director of Intelligence, Numbered Air Force (Overseas)
Communications Security Officer, Mobile Communications Gp

LEVEL 5

Weather Forecaster, Weather Det
Chief, Logistics Division, Military Airlift Wg
Nurse Anesthetist, Medical Center

LEVEL 4

Transportation Officer, Transportation Sq
Director of Manpower and Organization, Air Division
Chief Airman Personnel Division, Hq Major Air Command

LEVEL 3

Asst Staff Judge Advocate, Combat Support Gp
Clinical Psychologist, Medical Center
Chief Military Justice Division, AF Missile Test Center

LEVEL 2

Special Services Officer, Air Base Gp
Pharmacy Officer, USAF Hospital
Staff Chaplain, Numbered Air Force

LEVEL 1

Officers' Open Mess Custodian, Air Base Gp
Custodian, Non Appropriated Funds, Air Base Gp
Information Officer, Bomb Wg

FACTOR 4: ORIGINALITY, INGENUITY, AND CREATIVENESS: The extent to which the job requires new and unique methods, approaches, and solutions to problems. Consider the demand for novel ideas and inventiveness.

LEVEL 9

Research Aviation Physiologist, USAF School of Aviation Medicine
Astronautical Engineer, Propulsion, Rocket Propulsion Lab
Human Performance Engineer, Electronic Systems Div

LEVEL 8

Logistic Staff Officer, Hq Air Materiel Area
Manpower Management Staff Officer, Hq Major Air Command
Director, Department of Aircraft Maintenance Training, Tech School

LEVEL 7

Missile Safety Officer, Air Force Eastern Test Range
Base Deputy Commander for Materiel, Combat Support Gp
Management Engineering Officer, Hq Air Materiel Area

LEVEL 6

Civil Engineer, Civil Engineer Sq
Chief Re Entry Vehicle Maintenance Branch, Missile Maintenance Sq
Flying Safety Officer, Tactical Fighter Wg

LEVEL 5

Missile Combat Crew Commander, Strategic Missile Sq
Reconnaissance Pilot, Tactical Reconnaissance Sq
Commander, Weather Sq

LEVEL 4

Precision Photographic Services Officer, Strategic Reconnaissance Wg
Chief Transportation Traffic Management, Transportation Sq
Computer Maintenance Officer, Hq Major Air Command

LEVEL 3

Launch Area Maintenance Officer, Air Defense Missile Sq
Academic Instructor-Undergraduate Pilot Training, Student Sq
Clinical Laboratory Officer, USAF Hospital

LEVEL 2

Asst Base Equipment Management Officer, Supply Sq
Co-Pilot B-52, Bomb Sq
Accounting & Finance Officer, Combat Support Gp

LEVEL 1

Asst Medical Supply Officer, Medical Center
Optometry Officer, USAF Hospital
Chief, Administrative Services, Air Base Gp

FACTOR 5: COMMUNICATION SKILLS: The extent to which the job requires skill in oral and written communication. Consider the complexity and variety of information communicated as well as the level of the individuals and agencies involved.

LEVEL 9

Director of Information, Hq Major Air Command
Political Military Affairs Officer, Hq USAF
Secretary of the Air Staff, Hq USAF

LEVEL 8

Chief of Logistics Division, Hq Numbered Air Force
Astronautical Engineer, Hq Space & Missile Systems Org
OSI District Commander, Hq District OSI

LEVEL 7

Base Civil Engineer, Air Base Gp
Human Performance Engineer, Electronic Systems Div
Comptroller, Air Base Wg

LEVEL 6

Aviation Physiologist, Inspector General Gp
Chemical Engineer, AF Aero Propulsion Lab
Administrative Officer, Electronics Installation Gp

LEVEL 5

Officer Selection Officer, Det, USAF Recruiting Gp
Deputy Commander, Strategic Missile Sq
Chief, Sensors Section, AF Special Weapons Center

LEVEL 4

Construction Engineer, Civil Engineering Sq (Overseas)
Squadron Operations Officer, Combat Crew Training Sq
Accounting & Finance Officer, Fighter Gp

LEVEL 3

Commercial Transportation Officer, Materiel Sq
Avionics Officer, Aircraft Control & Warning Wg
Missile Maintenance Control Officer, Strategic Missile Sq

LEVEL 2

Fighter Interceptor Pilot, Fighter Intercetor Sq
Strategic Missile Complex Maintenance Officer, Strategic Missile Sq
Electronic Warfare Officer, Tactical Reconnaissance Sq

LEVEL 1

Co-pilot, Air Refueling Sq
Navigator, Bomb Sq
Helicopter Pilot, Aerospace Rescue & Recovery Sq

FACTOR 6: INTERPERSONAL SKILLS: The extent to which the job requires skill in dealing with people. Consider the need for sensitiveness, responsiveness, persuasiveness, self-control, and tact, as well as the possible consequences when such skills are not employed.

LEVEL 9

Staff Chaplain, Numbered Air Force
Political Military Affairs Officer, Hq USAF
Commander, Air Refueling Wg

LEVEL 8

Asst Professor of Economics, USAFA
Academic Instructor, Dept of Chemistry & Physiology, USAFA
Security Staff Officer, Hq Major Air Command

LEVEL 7

Commissary Officer, Air Base Gp
Wing Director of Safety, Bomb Wg
OSI Detachment Commander, OSI Det

LEVEL 6

Base Procurement Officer, Flying Training Wg
Instructor Navigator Bombardier, Flying Training Wg
Comptroller, Air Materiel Area

LEVEL 5

Communications-Electronics Staff Officer, Hq Major Air Command
Base Supply Officer, Combat Support Gp
Chief Accounting and Finance Division, Combat Support Gp

LEVEL 4

Special Services Officer, Services Sq
Chief, Medical Materiel Services, Medical Center
Maintenance Supervisor, Avionics Maintenance Sq

LEVEL 3

Air Freight Supervisor, Aerial Port Sq
Airborne Electronics Maintenance Officer, Fighter Interceptor Sq
Construction Engineer, Civil Engineering Sq (Overseas)

LEVEL 2

OIC Photo Laboratory, Reconnaissance Tech Sq
Avionics Officer, Avionics Maintenance Sq
Precision Photographic Services Officer, Strategic Reconnaissance Wg

LEVEL 1

OIC Weapons Services Branch, Munition Maintenance Sq
Navigator, Air Refueling Sq
Co-pilot, Air Refueling Sq

FACTOR 7: JUDGMENT AND DECISION MAKING: The importance and independence of judgments and decisions required by the job. Consider the nature, variety, and possible impact of decisions. The less well defined the guidance for decisions, the higher should be the rating; while the more specific and detailed the guidance, the lower should be the rating.

LEVEL 9

Chief, Budget Div, Hq Major Air Command
Staff Legal Officer, Military Affairs, Hq USAF
Chief, Weapon System Testing Div, Space & Missile Systems Org

LEVEL 8

Deputy Commander, Combat Support Gp
Missile Maintenance Inspector, IG, Hq Major Air Command
DCS/Comptroller, Hq Numbered Air Force (Overseas)

LEVEL 7

Logistics Officer, Space & Missile Systems Org
Experimental Flight Test Officer, Hq Aeronautical Systems Division
Chief of Personnel, Combat Support Gp

LEVEL 6

Commander, Organizational Maintenance Sq
Missile Safety Officer, Strategic Missile Wg
Missile Combat Crew Commander (ICBM), Strategic Missile Sq

LEVEL 5

Maintenance Officer, Strategic Missile Wg
Base Operations Officer, Combat Support Gp
Aircraft Commander KC-135, Air Refueling Sq

LEVEL 4

Munitions Maintenance Supervisor, Munitions Maintenance Sq
OIC, Maintenance Analysis Branch, Communications Area
Fighter Interceptor Pilot, Fighter Interceptor Sq

LEVEL 3

Reconnaissance Pilot, Tactical Reconnaissance Sq
Pilot, Transport, Military Airlift Sq
Special Services Officer, Services Sq

LEVEL 2

Traffic Management Officer, Transportation Sq
Fuels Officer, Air Base Gp
Helicopter Pilot, Combat Support Gp

LEVEL 1

Recreation Services Officer, Combat Support Gp
Pharmacy Officer, USAF Dispensary
Photographic Officer, Reconnaissance Technical Wg

FACTOR 8: PLANNING: The extent to which planning is required by the job. Consider the scope and significance of work for which planning is done. The longer the time span for which planning is done, the higher the rating should be.

LEVEL 9

Deputy Chief, Plans Division, Hq Major Air Command
Asst Director of War Plans, Hq Major Air Command
Director, Joint Operations Task Force, NORAD

LEVEL 8

Chief, R & D Contracts Div, Air Force Special Weapons Center
Management Engineering Officer, Air Materiel Area
Wing Logistics Officer, Air Refueling Wg

LEVEL 7

Maintenance Control Officer, Bomb Wg
Deputy Commander, Combat Support Gp
Budget Officer, Air Base Gp

LEVEL 6

Operations Officer, Fighter Interceptor Sq
Hospital Administrator, USAF Hospital
Chief, Data Services Division, Combat Support Gp

LEVEL 5

Chief, Career Control Branch, Air Base Gp
Traffic Management Officer, Transportation Sq
Procurement Officer, Combat Support Gp

LEVEL 4

Missile Combat Crew Commander, Strategic Missile Sq
Wing Administration Officer, Military Airlift Wg
Weapons Officer, Tactical Fighter Wg

LEVEL 3

Electronic Warfare Officer, Bomb Sq
Medical Administrative Officer, USAF Dispensary
Reconnaissance Pilot, Tactical Recon Sq

LEVEL 2

Fighter Interceptor Pilot, Fighter Interceptor Sq
Registrar, Medical Center
Security Police Officer, Security Police Sq

LEVEL 1

Flight Nurse, Aeromedical Evacuation Sq (Overseas)
Weather Forecaster, Weather Det
Optometrist, Medical Center

FACTOR 9 MANAGEMENT — Level of executive and managerial [illegible] the complexity, variety, and level of the activities which are directed [illegible] coordinated, controlled, commanded, or evaluated

LEVEL 9

Director of Budget, Hq Major Air Command
Commander, Combat Support Gp (Overseas)
Wing Commander, Tactical Control Wg (Overseas)

LEVEL 8

Wing Commander, Aerospace Rescue & Recovery Wg
Chief of Operations, Strategic Missile Sq
Deputy Commander, Air Base Gp

LEVEL 7

Maintenance Supervisor, Avionics Maintenance Sq
Squadron Operations Officer, Combat Crew Training Sq
Base Accounting & Finance Officer, Flying Training Wg

LEVEL 6

Chief, Consolidated Base Personnel Office, Combat Support Gp
Base Procurement Officer, Pilot Training Wg
Helicopter Squadron Operations Officer, Flying Training Sq

LEVEL 5

Traffic Management Officer, Transportation Sq
Base Communications Maintenance Officer, Communications Sq (Overseas)
Missile Combat Crew Commander, Strategic Missile Sq

LEVEL 4

Chief, Utilities Operations Division, Civil Engineering Sq
Chief, Photo Evaluation Branch, Photographic Sq
Base Fuels Officer, Supply Sq

LEVEL 3

Primary Pilot Training Instructor, Pilot Training Sq
Space Surveillance Officer, Aerospace Support Sq
Air Traffic Controller, Communication Sq

LEVEL 2

Administrative Officer, Air Base Sq
Data Services Officer, Combat Support Gp
Tactical Fighter Pilot, Tactical Fighter Sq

LEVEL 1

Clinical Psychologist, USAF Hospital
Psychiatric Social Worker, USAF Hospital
Helicopter Pilot Single Rotor, Air Base Sq

FACTOR 10: RISK. The extent to which the job requires exposure to risk of death or severe injury in peace time.

LEVEL 9

Forward Air Controller, Tactical Air Support Sq (Overseas)
Tactical Fighter Pilot, Tactical Fighter Sq
Instructor Pilot, Tactical Fighter, Combat Crew Training Sq

LEVEL 8

Pilot, EB-66, Tactical Electronic Warfare Sq (Overseas)
Navigator, Troop Carrier, Military Airlift Sq
Helicopter Pilot, Aerospace Rescue & Recovery Sq

LEVEL 7

Instructor Missile Launch Officer, Strategic Missile Sq
Arctic Survival Training Officer, Strategic Wg (Overseas)
Chief, Propellants Programming Br, AF Rocket Propulsion Laboratory

LEVEL 6

Commander, Radar Sq
Research Biochemist, School of Aerospace Medicine
Chemist, Air Force Materials Laboratory

LEVEL 5

Chief, General Investigations Div, Hq District OSI
Base Veterinarian, USAF Hospital
Commander, Civil Engineering Sq

LEVEL 4

Mechanical Engineer, Space & Missile Test Center
Air Traffic Control Officer, Communications Sq
Instructor, Institute for Professional Development

LEVEL 3

Medical Supply Officer, USAF Hospital
Chief, Engineering Standards Branch, Communications Region
Chief Machine Processing, Air Base Gp

LEVEL 2

Recreation Services Officer, Combat Support Gp
Chaplain, Combat Support Gp
Manpower Management Staff Officer, Flying Training Wg

LEVEL 1

Custodian Non-Appropriated Funds, Air Base Wg
Clothing Sales Store Officer, Air Base Wg
Instructor, French, Dept of Foreign Languages, USAFA

GRADE CODE SCALE

GRADE	CODE
LIEUTENANT	1 2 3
CAPTAIN	4 5 6
MAJOR	7 8 9
LIEUTENANT COLONEL	10 11 12
COLONEL	13 14 15
GENERAL	16

APPENDIX F: PROJECT OFFICER INSTRUCTIONS

SUBJECT: Field Test of Officer Grade Determination Procedures

TO: MET/Manpower Organization Commander

1. The Air Force Director of Manpower and Organization has asked the Air Force Human Resources Laboratory to assist in the development and testing of operational grade determination procedures.

2. As Commander of one of the organizations designated for inclusion in this study, you are responsible for insuring prompt compliance with the requirements specified in Attachments 1 through 8. All necessary materials are enclosed.

3. Please study the MET Commander/Project Officer Instructions and review the package of materials provided. All the specified requirements should be accomplished and materials returned within 40 work days after receipt.

ATTACHMENTS

1. MET Cdr/Proj Off Instructions
2. Notification Form
3. Job Sample Specifications
4. SSAN Roster
5. Job Incumbent Ltr w/Forms
6. Job Descriptions from Previous Study
7. Rater Instructions w/scales and forms
8. Return Labels and Envelopes

Field Test of Officer Grade Determination Procedures

MET Commander/Project Officer Instructions

Each MET/Manpower organization commander is responsible for accurate accomplishment of the steps specified in Phases I, II, and III below. This may be done either by the MET commander or a project officer. Essentially this field test of officer grade determination procedures involves MET/CBPO identification and selection of officer incumbents to complete job descriptions, MET collection of job descriptions, and MET evaluation of job descriptions.

Phase I

This phase will require close coordination between METs and local or servicing CBPOs to identify and select officer job incumbents to complete job descriptions. Maximum CBPO participation may be obtained for this phase.

Step 1. According to Air Force records, officers in the DAFSCs and grades given in attachment 3 are available to you for collection of job descriptions. These officers are identifiable through your CBPO or CBPOs listed in attachment 3. In conjunction with the CBPO, identify and locate the number of officers specified by DAFSC and grade in attachment 3. Officers selected should represent a variety or as many different 4-digit DAFSCs (including shreds) as available within each 2-digit DAFSC category. Officers who are assigned as overages should not be selected.

In previous officer grade evaluation project, 91 CONUS METs participated in the development of a grade determination technology. For these METs only, attachment 4 provides a SSAN roster of individuals who accomplished job descriptions in late 1974. Do not include these individuals in the present study if they are currently performing the same job.

Phase II

Step 1. After the officers in the DAFSCs/grades specified in attachment 3 have been selected, contact these officers to complete Air Force Officer Position Descriptions. Forward each officer job incumbent a letter of instructions, Privacy Act Statement, and Air Force Position Description as shown in attachment 5. If a job incumbent you have selected is not available due to transfer or extended TDY, substitute another officer in the same DAFSC and grade for completion of a job description.

Step 2. The Air Force Officer Position Descriptions are to be completed and returned to you within 10 working days after their receipt by each individual officer selected. Contact the selected officers before the end of the first week to insure they received the job description material and are making progress towards completion of Position Descriptions.

Step 3. When the AF Officer Position Descriptions have been returned to your organization/MET, carefully inspect all pages of the descriptions for completeness Review pages 2 and 3 of the job description to insure that information concerning job title, job context, and job summary is provided. The listing of duties and tasks should be legible, and should appear reasonably consistent with other information. Screen page 4 (assignment information), insuring that all blocks are completed, particularly the supervisor's judgment of the most appropriate grade for the job. If this information is not provided, the position description must be returned for accomplishment. If the immediate supervisor is not available for an extended period, his replacement or the second-line supervisor should accomplish this rating.

Step 4. Before proceeding with Phase III, other administrative processing of the job descriptions must be accomplished by METs. A job number identifier must be entered in the blocks at the top of page 4 of each position description. These job numbers are necessary for future reference by METs to identify which jobs were surveyed in the present project so as to avoid duplication or resurvey of the same jobs in any subsequent application of technology.

Step 5. For all completed job descriptions, transcribe each job number from page 4 to the top right side of page 2 of the form. Randomly, sort the completed descriptions into approximately equal sets of 25 descriptions. Fold each description so that pages 2 and 3 are on the outside with page 2 on top. Punch holes on the left margin of the folded descriptions and then fasten each of the sets of 25 into the folders provided. Make sure that each job description is folded and fastened so that only pages 2 and 3 can be read by raters.

Step 6. For each folder, list the job numbers from page 2 of the job description on a Job Rating Form such that there is one Job Rating Form associated with each set of approximately 25 descriptions. This is a critical step, so make sure the job numberes are entered accurately and legibly (typing optional).

A Job Rating Form with job numbers listed is necessary for each rater of the descriptions in each folder. The Job Rating Forms for each folder may be machine-duplicated. If such services are not available, a separate form must be prepared for each rater. Sufficient copies of the Job Rating Form are provided for this purpose. The number of raters and Job Rating Forms required are outlined in Phase III.

Step 7. In addition to the AF Officer Position Descriptions collected for this project, certain METs will rate approximately 25 job descriptions from a previous study. The folder containing the set of descriptions for your organization is given in attachment 6.* Observe that each of these

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* Certain METs designated by Hq USAF/PRMRE will not be requested to accomplish ratings on this folder of descriptions. Attachment 6 listed in the MET Commander's letter has been withdrawn if appropriate. However, all other requirements outlined in these instructions are applicable to such METs.

descriptions from the previous study has already been assigned a six-digit job number, found at the top of each page. Using these job numbers, prepare a separate Job Rating Form for this folder of descriptions for each rater as described in Step 6.

Phase III

This phase requires manpower and management engineering personnel at your location to rate the job descriptions in accordance with the Rater Instructions (attachment 7). Clerical personnel will not be used as raters. In METs with 7 to 13 personnel, obtain ratings from a minimum of the 7 most experienced personnel on all position descriptions. In fewer than 7 personnel are available, obtain ratings from all personnel. For larger METs with 14 or more potential raters, divide the folders of position descriptions into approximately equal groups, such that each group of folders is rated by a minimum of 7 raters. MET/Manpower commanders and project officers may serve as raters.

Step 1. Provide each rater with a set of Rater Instructions, a Rater Form, folders of position descriptions, Job Rating Forms with job numbers listed, and other rating material shown in attachment 7. Folders of position descriptions with associated Job Rating Forms can be arranged or delivered to raters in any convenient sequency, except that the one folder containing approximately 25 descriptions from a previous study should be rated by each rater after some experience has been gained with the other folders.

Step 2. Insure that all raters accomplish the requirements outlined in the Rater Instructions. Each rater will complete a Rater Form, which includes the name and SSAN. If Privacy Act questions arise, tell raters that name and SSAN will be used merely to collect the collate data, with individual rater identity treated only in aggregate terms.

Step 3. On receipt of materials from raters, as project officer you should review all Rater Forms and Job Rating Forms for completeness, and insure that the appropriate number of Job Rating Forms is attached. Do not change ratings assigned by raters.

As summary of required actions, a checklist is provided in Appendix B for your convenience. Before return of project materials, all requirements outlined in the checklist should be accomplished.

Step 4. When all Rater Forms and Job Rating Forms have been thoroughly checked as prescribed, assemble and forward all project materials to the Occupational and Manpower Research Division, AFHRL/ORE, Stop #63, Lackland AFB, TX 78236. A return address label has been provided (attachment 8).

MET Commander/Project Officer Instructions

Checklist

1. Review the entire package of project materials provided and carefully read the MET Commander/Project Officer Instructions.

2. Return the completed Notification Form to AFHRL/ORE, within 5 working days. Provide the date of the UPMR/MPAD used to derive job numbers.

3. Through MET/CBPO coordination, identify and locate officers in the appropriate DAFSC/grades specified for your MET/organization. Select these officers and obtain a completed AF Officer Position Description.

4. Check each position description. Insure completion of the supervisor's judgment of the appropriate grade for each job.

5. Determine and assign a job number identifier to each AF Officer Position Description. Accomplish the administrative processing required before commencing ratings of descriptions.

6. Identify and contact the prescribed number of raters outlined in Phase III. Provide the necessary material/forms and obtain ratings from manpower and management engineering raters in accordance with Rater Instructions.

7. Check all Rater Forms and Job Rating Forms for accuracy and completeness. Insure that complete sets of ratings have been provided by the prescribed number of raters.

8. Assemble all forms and descriptions and return all study materials to AFHRL/ORE not later than 12 Mar 1976.

APPENDIX F: 122 PARTICIPATING MANAGEMENT ENGINEERING TEAMS (MAIN STUDY 1976)

Management Engineering Teams and Raters Participating in the Main Study (1976) by Central Base Processing Office (CBPO) Code

	CBPO Code	MET Location	Number of Raters		CBPO Code	MET Location	Numbers of Raters
1	AF	Howard	6	41	FW	F.E. Warren	7
2	AH	Alconbury	6	42	GB	George	7
3	AM	Altus	5	43	GM	Grand Forks	9
4	AT	Andersen	7	44	GW	Griffiss	9
5	AU	Andrews	8	45	HB	Hahn	8
6	AX	Athenai Apt	7	46	HF	Hancock	6
7	AY	Aviano	7	47	HH	Pentagon	9
8	BB	Barksdale	11	48[a]	HI	Hickam	15
9	BD	Beale	7	48[a]	HI	Hickam	(15)
10	BF	Bentwaters	7	50	HP	Hill	14
11	BH	Bergstrom	7	51	HS	Holloman	5
12	BL	Bitburg	7	52	HV	Homestead	5
13	BN	Blytheville	7	53	KB	Kadena	8
14	BP	Bolling	5	54	KF	Keesler	11
15	BV	Brooks	7	55	KH	Kelly	14
16	BX	Grissom	8	56	KJ	Kelly/ USAFSS	11
17	CC	New Amsterdam	7	57	KM	Kincheloe	7
18	CD	Cannon	7	58	KU	Kunsan	7
19	CF	Carswell	7	59	KV	Kirtland	7
20	CH	Castle	9	60	KY	K.I. Sawyer	7
21	CK	Chanute	8	61	LA	Lackland	7
22	CL	Charleston	7	62[a]	LE	Langley	21
23	CO	Columbus	6	63[a]	LE	Langley	(21)
24	CP	Clark	16	64	LJ	Laughlin	5
25	CZ	Craig	5	65	LK	L.G. Hanscom	7
26	DF	Davis-Monthan	7	66	LP	Little Rock	8
27	DJ	AFAFC	5	67	LQ	Rickenbacker	12
28	DM	Dover	7	68	LS	Loring	7
29	DT	Duluth	6	69	LU	Los Angelus	7
30	DW	Dyess	7	70	LW	Lowry	7
31	EB	Edwards	8	71	LY	Luke	8
32[a]	ED	Eglin	16	72	MA	MacDill	5
33[a]	ED	Eglin	(16)	73	MB	Malstrom	7
34	EH	Eielson (included w/ EL)	(8)	74	MD	March	7
35	EJ	Ellsworth	7	75	ME	Mather	7
36	EL	Elmendorf	8	76	MG	Maxwell	16
37	EM	England		77	MH	McChord	8
38	EP	Peterson Fld	17	78	MK	McConnell	7
39	FC	Fairchild	7	79	ML	Mildenhall	7
40	FM	Ft Belvoir	5	80	MN	McGuire	6

	CBPO Code	MET Location	Number of Raters		CBPO Code	MET Location	Numbers of Raters
81	MP	Minot	6	104	SP	Shaw	6
82	MT	Moody	7	105	SQ	Sheppard	14
83[a]	MU	McClellan	10	106	TE	Tinker	12
84[a]	MU	McClellan	(10)	107	TJ	Torrejon	7
85	MW	Mt Home	6	108	TP	Travis	7
86	MY	Myrtle Beach	5	109	TX	Tyndall	10
87	NJ	Nellis	7	110	UP	Upper Heyford	7
88	NV	Norton	10	111	US	USAF Academy	7
89	OD	Offutt	18	112	VQ	Vandenberg	8
90	OP	Osan	5	113[a]	WE	Wright-Patterson	30
91	PF	Patrick	7	114[a]	WE	Wright-Patterson	(30)
92	PJ	Pease	8	115	WG	AF/OSI	7
93	PS	Plattsburg	7	116	WM	Webb	5
94	PV	Pope	6	117	WT	Whiteman	7
95	RF	Ramstein	8	118[a]	WU	Lindsey	7
96[a]	RJ	Randolph	17	119[a]	WU	Lindsey	(7)
97[a]	RJ	Randolph	(17)	120	WV	Williams	6
98	RM	Reese	6	121	WZ	Wurtsmith	7
99	RT	Richards Gebaur	14	122	YM	Yokota	8
100[a]	RX	Robins	7				
101[a]	RX	HQAFRES (Robins)	(7)				
102	SF	Scott	7				
103	SM	Seymour Johnson	7				
Total			932				

[a]Indicates two METs assigned to the same base representing more than one major command. Raters cooperated and are counted only once. Consequently there were 932 individual MET members who participated in the 1976 study, and a total of 954 raters, 4 of which did not provide their grade level on the background form, for both the 1976 study and the 1974 study combined. Many of the same MET raters participated in both rating exercises.

APPENDIX G: DISTRIBUTION OF 54 AFSCs BY GRADE

Distribution of Grades by 54 AFSCs for 11,192-Case Sample Used as the Base for Projections of Grades to the Non-Aircrew Officer Force

AFSC Sampled	UDL GRADE OF JOB					
	Lieutenant	Captain	Major	Lt Colonel	Colonel	Total
001X				17	24	41
002X				10	54	64
003X				8	102	110
004X				6	37	43
005X				17	17	34
006X				3	27	30
007X			1	28	30	59
008X				1	7	8
009X				2	5	7
021X			11	9	3	23
051X	1	21	7	4		33
14XX		272	317	313	30	932
16XX	22	42	20	5	11	100
17XX	34	100	52	19	8	213
18XX	200	312	150	47	16	725
20XX	11	40	23	16	7	97
21XX		1	2	3	1	7
22XX		189	190	116	9	504
23XX	7	21	11	9	4	52
25XX	17	137	50	27	10	241
26XX	30	106	56	16	2	210
27XX				43	41	84
28XX	77	411	198	135	7	828
29XX	5	46	56	59	28	194
30XX	32	261	193	67	25	578
31XX	16	54	23	13	13	119
40XX	29	234	153	146	43	605
46XX	4	65	35	21	6	131
51XX	24	187	90	32	9	342
55XX	57	131	69	59	28	344
57XX	5	9	9	3	3	29
60XX	6	70	48	26	13	163
62XX	3	29	13	18	4	67
63XX	4	16	8	6	2	36
64XX	19	115	69	63	18	284
65XX	20	83	60	46	21	230
66XX	1	35	50	36	8	130
67XX	14	71	65	26	9	185
69XX	3	16	20	7	3	49
70XX	54	248	83	65	11	461
73XX	24	218	106	84	10	442
74XX	5	37	22	25	10	99
75XX	3	29	35	38	15	120
79XX	1	31	24	15	9	80
80XX	22	175	89	46	23	355

AFSC Sampled	Lieutenant	Captain	Major	Lt Colonel	Colonel	Total
81XX	11	78	28	27	11	155
87XX	4	14	3	1		22
88XX	1	100	51	51	18	221
89XX		85	39	29	21	174
90XX	18	70	30	38	18	174
91XX	19	69	22	10	9	129
92XX	27	61	13	6		107
97XX	272	273	82	33	9	669
99XX		22	11	11	9	53
Totals	1,102	4,584	2,687	1,961	858	11,192

APPENDIX H: MEANS AND STANDARD DEVIATIONS OF JOB RATINGS

Means and Standard Deviations of Job Ratings

Factor (9-Point Scale)	Criterion Jobs								New Jobs				Grand Total	
	N=485		N=1,240		N=1,725		N=1,687		N=9,634[b]		N=11,321[c]		N=13,046[d]	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
1 Formal Education	4.7	2.3	4.2	2.1	4.3	2.2	4.4	2.1	4.1	1.9	4.2	1.9	4.2	2.0
2[a] Special Training and Work Experience	4.9	2.2	4.4	2.1	4.6	2.1	4.5	2.0	4.5	1.8	4.5	1.9	4.5	1.9
3 Working Conditions	4.2	1.9	3.8	1.8	3.9	1.8	3.9	1.9	4.0	1.8	4.0	1.8	4.0	1.8
4 Originality, Ingenuity and Creativeness	4.7	2.3	4.3	2.1	4.4	2.2	4.4	2.0	4.2	1.8	4.2	1.9	4.3	1.9
5[a] Communication Skills	5.1	2.1	4.8	2.0	4.9	2.0	4.9	1.9	4.7	1.7	4.7	1.8	4.7	1.8
6 Interpersonal Skills	5.0	2.1	4.8	2.0	4.8	2.0	4.9	1.9	4.6	1.8	4.6	1.8	4.7	1.8
7[a] Judgment and Decision Making	5.2	2.2	4.8	2.1	4.9	2.1	4.8	2.0	4.7	1.8	4.7	1.8	4.8	1.9
8[a] Planning	4.9	2.2	4.6	2.1	4.7	2.1	4.7	2.0	4.5	1.9	4.5	1.9	4.5	1.9
9[a] Management	4.7	2.3	4.4	2.2	4.5	2.2	4.5	2.1	4.3	2.0	4.3	2.0	4.4	2.1
10 Risk	3.2	2.0	2.9	1.8	3.0	1.9	3.0	2.0	2.9	1.8	2.9	1.8	2.9	1.8
MET Mean Grade Rating (16-Point Scale)	7.2	3.7	6.7	3.5	6.9	3.6	6.7	3.2	6.5	3.1	6.5	3.1	6.6	3.3
Composite Score	41.2	19.8	38.0	18.8	39.0	19.2	38.7	18.8	37.6	18.4	37.8	18.5	38.1	18.7
k ratings	14.9		13.0		13.6		7.5		6.8		6.9		7.8	

Note: In some N sets minor reductions took place due to incomplete or missing information.

[a] Equation factor.

[b] 9,561

[c] 11,248

[d] 12,973

APPENDIX I: SUMMARY OF RELIABILITIES FOR 10 FACTORS, MET JUDGMENT OF GRADE AND PREDICTED COMPOSITE SCORE

This appendix presents the inter-rater reliabilities (R_{kk}) for all judgments made by MET raters on 10 factors and their judgments of appropriate grade for the job. Each table reports sample subset R_{kk}'s in the following format for 5 or 7 ratings per job computed by the Spearman-Brown prophecy formula.

	Policy Board Jobs	Current Jobs	Total
1974 Pilot	N= 485 (1)	N= 1,687 (4)	N= 2,172 (7)
1976 Main Study	N=1,240 (2)	N= 9,634 (5)	N=10,874 (8)
Total Sample	N=1,725 (3)	N=11,321 (6)	N=13,046 (9)

Cells	Description
(1) to (3)	Policy Board jobs used as the criterion in computing validity and construction of the grade conversion table
(4) to (6)	Current jobs newly collected used as the base for making projections to the total non-aircrew force
(7) and (8)	Rating subset information used for reliability computations
(9)	Grand total number of all jobs used in the study

Inter-Rater Reliabilities (R_{kk}) for
Factor 1. Formal Education[a]

	Jobs				Jobs		
	Policy	Current	Total		Policy	Current	Total
Pilot	.84	.84	.84	Pilot	.88	.88	.88
Main	.83	.82	.82	Pilot	.87	.87	.87
Total	.83	.83	.83	Total	.88	.87	.87
k for average of 5 ratings per job				k for average of 7 ratings per job			

Inter-Rater Reliabilities (R_{kk}) for
Factor 2. Special Training and Work Experience[a]

Pilot	.79	.80	.80	Pilot	.84	.85	.85
Main	.80	.80	.80	Main	.85	.85	.85
Total	.80	.80	.80	Total	.85	.85	.85
k for average of 5 ratings per job				k for average of 7 ratings per job			

Inter-Rater Reliabilities (R_{kk}) for
Factor 3. Working Conditions[a]

Pilot	.74	.76	.75	Pilot	.80	.81	.81
Main	.74	.76	.76	Main	.80	.82	.81
Total	.74	.76	.75	Total	.80	.82	.81
k for average of 5 ratings per job				k for average of 7 ratings per job			

Inter-Rater Reliabilities (R_{kk}) for
Factor 4. Originality, Ingenuity and Creativeness[a]

Pilot	.81	.79	.80	Pilot	.86	.84	.85
Main	.79	.78	.78	Main	.84	.83	.83
Total	.80	.78	.79	Total	.85	.83	.84
k for average of 5 ratings per job				k for average of 7 ratings per job			

Inter-Rater Reliabilities (R_{kk}) for
Factor 5. Communication Skills[a]

Pilot	.82	.79	.81	Pilot	.87	.84	.85
Main	.81	.80	.81	Main	.86	.85	.85
Total	.82	.80	.81	Total	.86	.85	.85
k for average of 5 ratings per job				k for average of 7 ratings per job			

[a]Computed by the Spearman-Brown prophecy formula.

Inter-Rater Reliabilities (R_{kk}) for
Factor 6. Interpersonal Skills[a]

Pilot	.78	.76	.77	Pilot	.83	.82	.83
Main	.79	.78	.78	Main	.84	.83	.83
Total	.79	.78	.78	Total	.84	.83	.83
	k for average of 5 ratings per job				k for average of 7 ratings per job		

Inter-Rater Reliabilities (R_{kk}) for
Factor 7. Judgment and Decision Making[a]

Pilot	.79	.79	.79	Pilot	.84	.84	.84
Main	.80	.79	.79	Main	.85	.84	.84
Total	.80	.79	.79	Total	.85	.84	.84
	k for average of 5 ratings per job				k for average of 7 ratings per job		

Inter-Rater Reliabilities (R_{kk}) for
Factor 8. Planning[a]

Pilot	.80	.82	.81	Pilot	.85	.86	.86
Main	.80	.83	.82	Main	.85	.87	.86
Total	.80	.82	.82	Total	.85	.87	.86
	k for average of 5 ratings per job				k for average of 7 ratings per job		

Inter-Rater Reliabilities (R_{kk}) for
Factor 9. Management[a]

Pilot	.79	.83	.82	Pilot	.84	.87	.86
Main	.79	.83	.82	Main	.84	.87	.86
Total	.79	.83	.82	Total	.84	.87	.86
	k for average of 5 ratings per job				k for average of 7 ratings per job		

Inter-Rater Reliabilities (R_{kk}) for
Factor 10. Risk[a]

Pilot	.76	.82	.80	Pilot	.81	.86	.85
Main	.76	.82	.81	Main	.81	.86	.85
Total	.76	.82	.80	Total	.81	.86	.85
	k for average of 5 ratings per job				k for average of 7 ratings per job		

[a]Computed by the Spearman-Brown prophecy formula.

Inter-Rater Reliabilities (R_{kk}) for MET Judgment of Appropriate Grade[a]

Pilot	.86	.91	.89	Pilot	.90	.93	.92
Main	.87	.92	.91	Main	.91	.94	.94
Total	.87	.92	.91	Total	.90	.94	.93
	k for average of 5 ratings per job				k for average of 7 ratings per job		

Inter-Rater Reliabilities (R_{kk}) for Predicted Composite Score[a]

Pilot	.94	.95	.95	Pilot	.96	.97	.96
Main	.94	.96	.95	Main	.96	.97	.97
Total	.94	.96	.95	Total	.96	.97	.97
	k for average of 5 ratings per job				k for average of 7 ratings per job		

[a]Computed by the Spearman-Brown prophecy formula.

APPENDIX J: SUMMARY OF INTER-RATER RELIABILITIES FOR COMPOSITE SCORES BY RATER TYPE BASED ON SAMPLE SUBSETS OF JOBS WITH TWO OR MORE RATERS

Remaining N Sets When Inter-Rater Reliabilities (R_{kk}) for Composite Scores are Computed for Jobs with Two or More Raters

	Jobs				Jobs		
	Policy	Current	Total		Policy	Current	Total
	Total Raters				**Officer Raters**		
Pilot	485	1,687	2,172	Pilot	451	1,043	1,494
Main	1,240	9,634	10,874	Main	914	4,019	4,933
Total	1,725	11,321	13,046	Total	1,365	5,062	6,427
	Enlisted Raters				**Civilian Raters**		
Pilot	474	1,469	1,943	Pilot	257	441	698
Main	1,240	8,348	9,588	Main	643	3,759	4,402
Total	1,714	9,817	11,531	Total	900	4,200	5,100

Inter-Rater Reliabilities (R_{kk}) for Predicted Composite Scores by Total and Rater Type for Jobs with Two or More Raters[a]

	Jobs				Jobs		
	Policy	Current	Total		Policy	Current	Total
	Total Raters				**Officer Raters**		
Pilot	.94	.95	.95	Pilot	.96	.96	.96
Main	.94	.96	.95	Main	.95	.97	.96
Total	.94	.96	.95	Total	.95	.97	.96
	Enlisted Raters				**Civilian Raters**		
Pilot	.94	.95	.94	Pilot	.94	.96	.95
Main	.94	.95	.95	Main	.94	.96	.96
Total	.94	.95	.95	Total	.94	.96	.96

k for average of 5 ratings per job

[a]Computed by the Spearman-Brown prophecy formula

k for average of 5 ratings per job

Inter-Rater Reliabilities (R_{kk}) for Predicted Composite Scores by Total and Rater Type for Jobs with Two or More Raters[a]

	Jobs				Jobs		
	Policy	Current	Total		Policy	Current	Total
	Total Raters				**Officer Raters**		
Pilot	.96	.97	.96	Pilot	.97	.97	.97
Main	.96	.97	.97	Main	.96	.98	.97
Total	.96	.97	.97	Total	.97	.98	.97
	Enlisted Raters				**Civilian Raters**		
Pilot	.96	.96	.96	Pilot	.96	.97	.97
Main	.95	.96	.96	Main	.96	.97	.97
Total	.96	.96	.96	Total	.96	.97	.97

k for average of 7 ratings per job

[a]Computed by the Spearman-Brown prophecy formula

k for average of 7 ratings per job


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AD-A093 808 AIR FORCE HUMAN RESOURCES LAB BROOKS AFB TX F/G 5/9
MANAGEMENT ENGINEERING TEAM APPLICATION OF OFFICER GRADE REQUIR--ETC(U)
DEC 80 K FINSTUEN, G N MATTHEWS, W H POPE
UNCLASSIFIED AFHRL-TR-80-32 NL

SUPPLEMENTARY

INFORMATION

DEPARTMENT OF THE AIR FORCE
AIR FORCE HUMAN RESOURCES LABORATORY (AFSC)
BROOKS AIR FORCE BASE, TEXAS 78235

Errata

REPLY TO ATTN OF: TSR

16 JAN 1981

SUBJECT: Removal of Export Control Statement

AD-A093508

TO: Defense Technical Information Center
Attn: DTIC/DDA (Mrs Crumbacker)
Cameron Station
Alexandria VA 22314

1. Please remove the Export Control Statement which erroneously appears on the Notice Page of the reports listed [redacted]. This statement is intended for application to Statement B reports only.

2. Please direct any questions to AFHRL/TSR, AUTOVON 240-3877.

FOR THE COMMANDER

Wendell L Anderson

WENDELL L. ANDERSON, Lt Col, USAF
Chief, Technical Services Division

1 Atch
List of Reports

Cy to: AFHRL/TSE